JULY 1984

AN ARGUS SPECIALIST PUBLICATION

GAMES COMPUTING

85p

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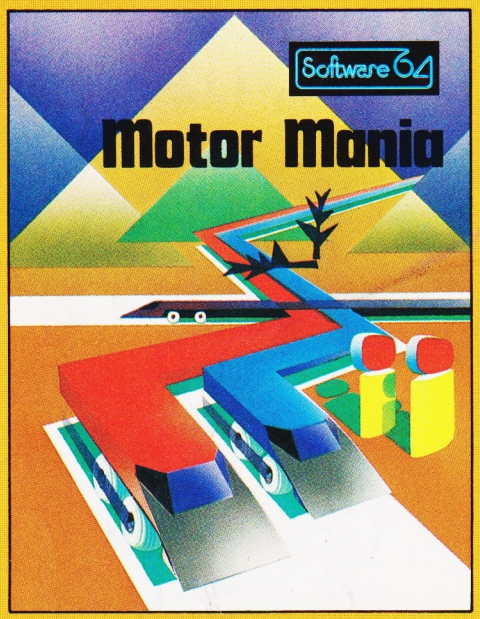

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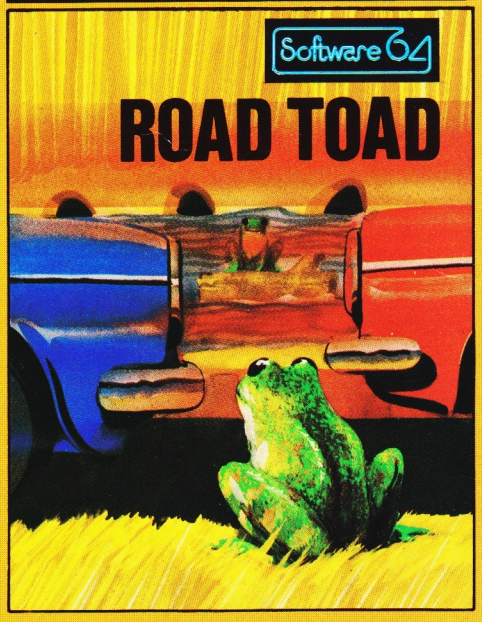

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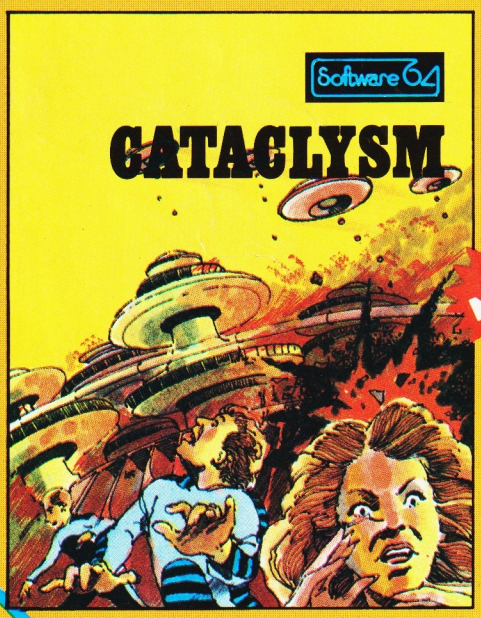
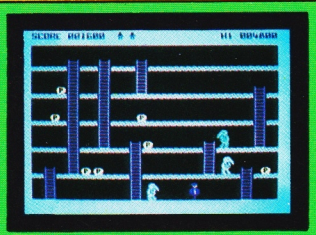


NEW

WORD FEUD **£7.95**

This brilliantly conceived program combines the best parts of arcade games with the best of educational games, making a real family game that anyone who can see the screen can participate in. You have to find the word that is hidden twice in the jumble of letters, then guide your sights over one of the occurrences of it.

The first to find it wins! You can play by yourself or in teams against the computer, or against other players. Three difficulty levels are included to suit young and old alike!



BONZO 64 **£7.95**

This best-selling game for the VIC-20 is now available on the 64! Featuring the most intelligent and devious monsters you have ever tried to avoid, the Bonzos, this game is a real joystick wrencher. Move Hans, the handyman, up and down the ladders to pick up the boxes from the different levels.

But don't meet a Bonzo on the way!

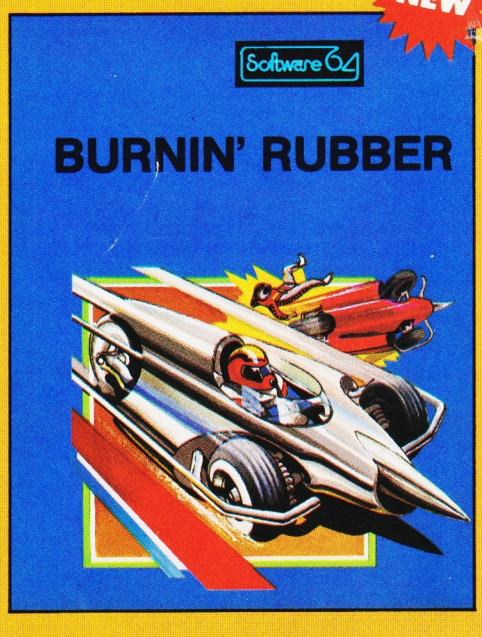
CATACLYSM **£5.95**

Pure shoot-em-up arcade action for the 64 and unexpanded VIC! The Lunar city of Erriam is under attack from the ships of the Jovian empire. Their merciless bombing will reduce your city to a pile of rubble, unless you can hold them off. You are the commander of the sole laser defence base. Your mission - hold out for as long as possible.

BURNIN' RUBBER

NEW

You are an entrant in the great Intergalactic Four Seasons Death Race!. You must tackle the Spring, Summer, Autumn and Winter sections with the objective of running as many other cars as possible off the road. The opposition is numerous, including the indestructable but slow Tank Cars, the tricky Deathmobiles and many other Demon Drivers. You have one advantage - your car can fly for a limited distance, allowing you to avoid hazards if you're quick enough! All this and more makes Burnin' Rubber the car race of the century!



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News.....7
In and around the games software scene.

Planet Lander.....ORIC/ATMOS 12
Here's a devellish game for all would-be space pilots.

Video Game Extras.....19
Games Computing brings you a generous round-up of bits and pieces to make your VCS bigger, brighter and better.

Snail Trail.....VIC 20 22
Don't be fooled into thinking this snail's pace is slow — 'cause it's not. He'll give you a run for your money all right.

Puzzles.....27
It's brain damage time from Lou and Les Falk — and don't cheat by looking at the answers at the back of the mag.

Frogling.....TEXAS 30
Cross the road and, c-r-o-a-k, you're squashed!

COMPETITION.....37
WIN loads of software from demon producers Durrell.

Software Reviews.....39
Don't miss these honest write-ups of games for everyone.

Video Vying.....46
The latest games to run on your video game console reviewed.

PULL-OUT POSTER

House on the Misty Hill.....BBC 49
An intriguing adventure game to keep you guessing.

Driver.....SPECTRUM 58
A super road race game to thrill Spectrum gamesters.

Ambling Android.....BBC/ELECTRON 61
The fantastic follow-up game to last month's Android Antics. But this time we've got him collecting eggs!

Atmos at Large.....67
We take the lid off the new Oric offering — the Atmos. Find out how it performs.

Holmes and Moriarty.....BBC 70
Addictive adventuring on your BBC.

Virgin Report.....75
What Nick Alexander thinks of the software game.

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CONTENTS

JULY 1984

Adventure of Pat the Postman..... SPECTRUM 78
Don't miss this scintillating Spectrum adventure game. It's a winner.

Software Reviews 2..... 84
More of the games you could add to your software library, or not.

Sir Prance-a-lot..... TEXAS 90
Help him rescue the damsel in distress on your computer.

Triple Chance..... VIC 20 94
Let the dice roll and hope they fall in your favour or else you're bust!

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Galaxions	Artic	4.95	3.95
Pimania	Automata	10.00	9.00
Pi-Balled	Automata	6.00	4.50
Go To Jail	Automata	6.00	4.50
Groucho	Automata	10.00	9.00
Test Match	CRL	5.95	4.95
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Abersoft Forth	Melbourne House	14.95	11.95
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COMMODORE 64

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Derby Day	CRL	7.95	6.95
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Get Off My Garden	Interceptor	7.00	5.00
Valhalla	Legend	14.94	
Jumpin Jack	Livewire	8.95	7.95

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ORIC

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Games on Disk

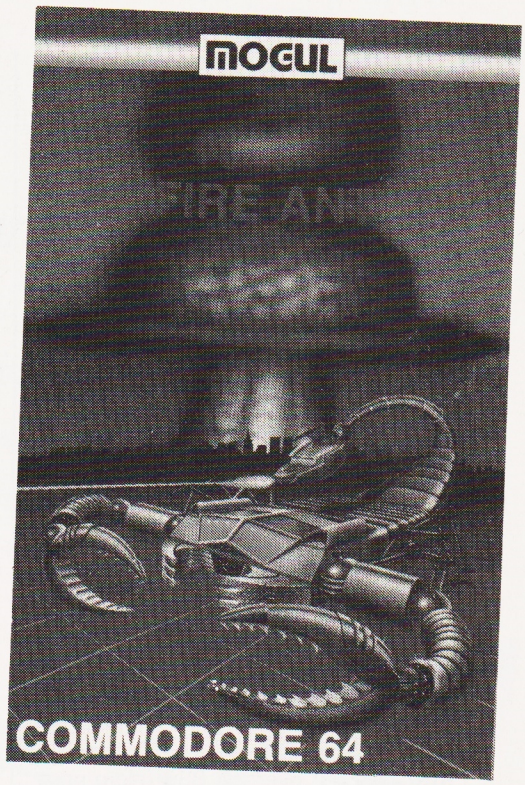
Richard Shepherd Software and Mogul are the latest companies to start producing games on disk for the Commodore 64.

Richard Shepherd's Commodore 64 versions of their games including Urban Upstart are available on disk at £9.50 or tape at £6.50. Urban Upstart features split screen graphics/text, over ninety locations all of which have a high resolution graphics picture associated with them.

Mogul are releasing their much praised 'Fire Ant' program on disk with all their other Commodore 64 titles to follow. Fire Ant casts the player as an ant who is trying to clear his nest of invading scorpions and save the queen ant.

There has been a big upsurge in disk software for the Commodore 64, this is because the tape system for the 64 is very slow and disks are so cheap. You can get a Commodore 64, a 180K disk drive, and free software worth about £125 for the price of one BBC micro. Disk drives are being sold at a rate of one drive for every five Commodore 64s.

Richard Shepherd Software are at Elm house, 23-25 Emshot Lane, Chippenham, Slough, Berks. Mogul are at 90 Regent St, London W1.



Lower Games Prices

Two software companies are pioneering the market of pocket money software.

Atlantis Software and Mastertronic have both released games software at £1.99 a tape. Mastertronic have released over 20 games, most of them are new releases but some have been bought off existing software houses.

Duck Shoot for the Commodore 64 was originally developed by Mr Chip software to complement their VIC 20 version, but it was decided not to go ahead with marketing this. Spectipede is STILL being sold by R and R Software at £5.50. Both these are being sold at £1.99. Mastertronic have many more games to be released. Martin Alper of Mastertronic said "We have programmers working on our next generation of games. What we have here is our base line for quality, everything else will be better or as good". He went on to say "All software should be this price. Some exceptional software could go at a higher price but never as high as £15 as one software house has suggested".

Atlantis Software are launching four games with four to follow each month. The games will run on the Commodore 64, the VIC 20, and the Spectrum. Their first four titles are Rattler, Monster Munch, Mosquito, and Operation Ganymede.

Mastertronic are at 48 George St, London W1. Atlantis Software are at 19 Prebend St, London N1.

Splat Mats

Incentive software have printed 20,000 'Splat mats' and are giving them away to anybody who sends them a stamped addressed envelope.

This latest gimmick is to draw attention to their new game for the Commodore 64, Splat. Originally written for the ZX Spectrum the game involves exploration, survival, and eating grass!!

The program is 40K long and is loaded into the Commodore 64 in five minutes. How? By using a high speed loader called 'Power-Load'. These types of loading system seem to be very common on the Commodore 64 recently. The Commodore tape system is totally software controlled, so, all you have to do is change the software, and you have your own high speed loader. I wish it was included with the Commodore 64 to begin with, so us ordinary mortals can use it immediately. One game takes over 26 minutes to load under 'normal time'.

ISL have also launched Millionaire and Temple of Vran for the ZX Spectrum. Millionaire puts you in charge of a software company and is a simulation game. Temple of Vran is an adventure sequel to Mountains of Ket also for the ZX Spectrum. The final part of the adventure is to be released in the autumn.

Splat costs £6.50, Temple of Vran, Mountains of Ket, and Millionaire cost £5.50.

Incentive Software are at 54 London St, Reading, Berkshire.

Tatung Brainpower

Tatung, the Taiwanese electronics gaint has launched a new micro that is designed and made in Britain.

The Einstien computer costs a massive £500 taking it over the BBC micro price bracket. The Einstien has 80K of memory, a real keyboard (for the price you'd expect it) and a built in three inch disk drive taking Hitachi standard disks. The BASIC is the non-standard Xtal BASIC as used some years ago on the Sharp range of computers. The BASIC needs to be loaded in off disk but this takes only 15 seconds. When using BASIC about 40K is left for the user, 16K going for graphics, and 24K for the BASIC language.

The graphics and screen use the well worn TI graphics generator chip giving 24×32 or 40 columns text, 256×194 graphics, with 16 colours and sprites. This graphics generator is used in the TI-99/4A, Sord M5, Colecovision, and the MSX machines.

The machine contains 8K of ROM, this is used to start the machine going and load in the BASIC at start up. It can take up to 32K of external cartridge ROM.

The operating system is similar to the standard business operating system CP/M and will run some of the pograms that were written for it, but as the screen is only 40 columns wide, most of these programs will not run as they depend on 80 columns to work. All the languages do work and these include a lot of very cheap compilers, which means that you can write a game in BASIC and have it converted into machine code to run many times faster.

The first games are already out with a version of Chuckie Egg by A&F Software being ready at the launch.

There are two joystick ports similar to the BBC and Dragon using 'Pot' joysticks, a Centronics printer port, an RS232 port for things like modems for Prestel, and a user port.

Since the launch of the Amstrad and if the QL ever gets off the ground the market for a 'quality' micro seems to be sown up with the BBC being established and new names coming into the market. Whether the Einstien will be a success remains to be seen, its design is unremarkable and it seems overpriced, even with a built in disk drive.

Deliveries should begin in June or July.

Taitung are at Bridgenorth, Salop WV15 6BQ.

Valhalla for 64

Legend, the company that brought you Valhalla for the ZX Spectrum, has just released the game for the Commodore 64.

Legend claim that the Commodore's capabilities have been used to the full to provide more lifelike background and flicker free animation.

Valhalla is an adventure based on Norse myths, six different adventures are played in the game using 36 cartoon animated characters to help and hinder you. Valhalla contains over 60 different locations and has a high quality of animiation on screen, which is what makes Valhalla so special. Legend call the game an 'Interactive Computer Movie' or ICOM for short.

Valhalla cost £70,000 to develop over nine months. Legend's next project will be totally different and is going to be much more complicated, it has a development budget of £250,000 so it should be worth waiting for.

Valhalla for the Commodore 64 and ZX Spectrum will be available for £14.95.

Valhalla are at PO Box 435, London E4.

The End of Vectrex

Home computers have claimed another video victim, MB Games the manufacturer of the revolutionary Vectrex video game have stopped making it in America, meaning that it will not be sold in Britain despite high sales.

The Vectrex used vectorgraph scanning to produce stunning 3D effects on its built in screen, had an integral sound generator, and some excellent games. It's non-conformity made it unpopular to many. It was a case of you hated it, or you loved it. Vectrex machines are now being sold off at £40 each, their recommended retail price is £110.

The demise of Vectrex in American leaves only the big two to contend for the dedicated video game market Atari and Colecovision. With the rise of computers as home entertainment video units the use of video games has waned. The Atari is still with us after five or six years due to its large backup of software and low price. The Colecovision is a highly advanced video game that has a superior specification to most home computers and is available for around £100. The software for it is excellent and lots of it is emerging very fast, the software library will soon be rivalling even Atari's.

Cartridge prices play a big part in video games vs computers. A computer game costs between £2 and £10 and cartridges for computers cost around £10. Video game prices on the other hand can cost around £30.

The Colecovision can convert into a powerful computer and has advanced features, the Atari is long established, and computers are here to stay. Who will win?

MB Games are at Spencer House, 23 Sheen Rd, Richmond-on-Thames, Surrey.

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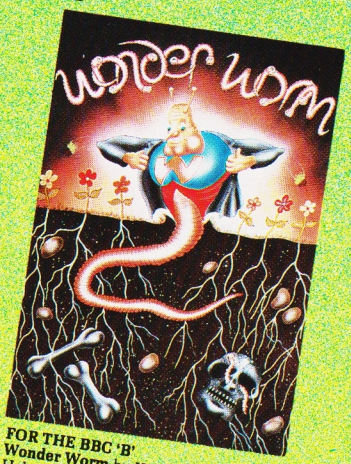
FOR ANY SPECTRUM
Twilight Zone by Nick Outram
You have now entered the Twilight Zone against your wishes. Your only thoughts are of escape but the powers that be have decreed that to be set free you must compete and win in the games. You have to reach the Ultima Zone. We wish you all the best, Earthling.

B

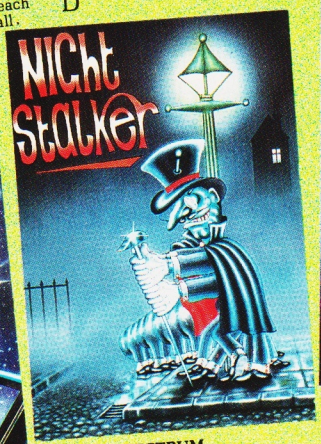


FOR THE BBC 'B'
Wonder Worm by Kevin Bramhill
Help Wally the worm turn into the mighty Wonder Worm by moving him around his garden eating the special pods as he goes. But beware not everything in Wally's Garden is friendly as you will soon find out.

C

FOR ANY 48K SPECTRUM
Gremlins by Chris Kerry
Uranium has become the main fuel for Earth. Unfortunately Earth's supply of Uranium is dwindling fast. Jupiter has unlimited supplies of the precious metal, only one problem faces the Intergalactic miner robots from earth: GREMLINS.

D

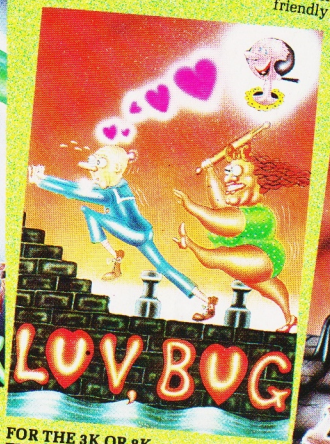


FOR ANY SPECTRUM
Night Stalker by Frankie Dunn
While working on a top secret experiment for the government, Professor Amron dropped some of his special formula onto the floor. Within minutes, the insects that were on the floor, became noticeably larger.
Your mission, to kill the insects before they can breed, but beware of the deadly Centipede.

E

FOR ANY 48K SPECTRUM
Jack and the Beanstalk
by Chris Kerry
Will Jack get the riches from the Giant's castle without being stomped on. Will he climb the beanstalk without falling off; only you (and Jack) will know as you rush around looking frantically for the treasures you desire.

F



FOR THE 3K OR 8K EXPANDED VIC 20
Luv Bug by John Parker
Dudley is a bit of a Romeo, now try telling that to his girlfriend Bertha; she'll kill you. And that's what she intends to do to Dudley if she ever catches him. Linda is the new woman in Dudley's life and Dudley will need all your skill to help him avoid Bertha and still see Linda. Oh for the joys of Love!

G

FOR THE BBC 'B'
Blocker by Martin Sykes
Poor Oswald is trapped inside a video game by the evil arch enemy the Bomber. His only chance of survival lies in your hands as you guide him around his ever decreasing grid.

H

FOR ANY SPECTRUM
Spider's Web by Peter Milne
Micky is a greedy little spider. He traps lots of Flies and Wasps on his web and then stores them to eat later but it's tough for Micky, as the Flies bite back.

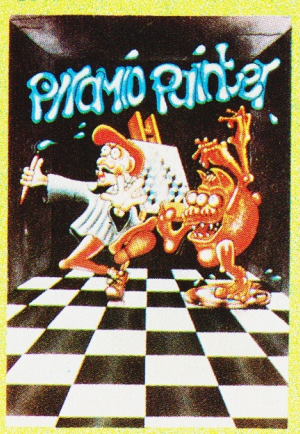
I

FOR ANY SPECTRUM
Mega Fruit by Bob Hitching
This is the ultimate fruit machine, with all the features of the real Arcade machines, such as Nudge, Hold, Gamble etc.

J1 VIC 20 J2 CBM 64

FOR THE UNEXPANDED VIC 20 and the CBM 64 (CBM with Adman Speech)
3D Silicon Fish by Chris Stamp
Sillo has to collect Silicon and return to Earth before the Krllyon destroys him. Will he make it and collect his reward? Only you can tell.

K



FOR THE BBC 'B'
Pyramid Painter by Chas Smith
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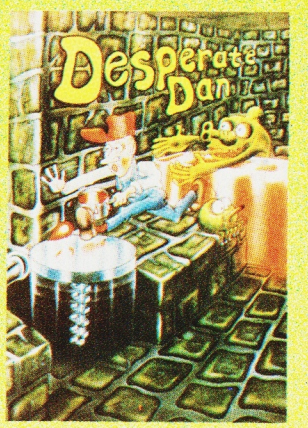
L



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Each screen adds a variety of obstacles which block your descent. With precise useage of thrust and super-thrust these should be no problem. Remember to watch the fuel level — don't run out or else you won't be able to thrust and will result in dire consequences.

Possible Alterations

Musical tunes could be easily incorporated for left, right and centre. A hall of fame could be substituted for the high-score routine. XX = FRE(" ") could be used to force garbage collection. In line 710 you could alter the amount of fuel you start with, so that in higher screens you get more fuel
(eg. F = 400 + SH * 50-SK * 50) than in lower screens.

As it stands there are 13 different screens, but with a 48K Oric or Atmos another 25 or so will fit.

RUNdown

Line	Action
10	Toggles off cursor, keyclick, and CAPS.
20-50	Jumps to various sections of the program.
100-500	Main loop.
600-790	Set up screen routine.
800-850	Successful landing routine.
900-950	Crash routine.
1000-1100	High-score routine.
1200-1450	Set up screens.
1500-1730	Instructions.
1640-1680	Redefines control keys.
1690	Skill level input.
1710	Resets variables for game.
2000-2260	Redefine characters, sets control keys, strings for landscape and sound, initial high-score.
2100-2260	DATA for redefined characters.

Variables Used

L$,R$,T1$T2$,	Control keys.
P$,P1$,P2$P3$	Landscape strings.
U$	Music string.
HS,HS$	High-score, Holders name.
X1,Y1	Current position of ship.
X2,Y2	Old position of ship.
F,V,H	Fuel, velocity, and height values.
LI,SH,SC	Lives left, sheet number, and score values.
Z	Flag, disable thrust if no fuel left.
SK	Skill level.
RO	Rounds, for calculating sheet number.
A$	General input string.
I$	Main Input.
T,R,Q1,Q2	General variables.

PLANET LANDER

RUNS ON ORIC

Conversion Clues

This program should run on an Oric 16K/48K without alteration. For those unfortunate enough not to own an Oric, here are a few hints for conversion.

POKE #24E,X	Alters the delay before the keyboard auto repeats. Saves bashing the keys.
POKE #24F,X	Alters the rate of auto repeating.
MUSIC,PLAY	Oric specific sound commands.
PING,ZAP, EXPLODE	Pre-defined sounds.
CHR$(6)	Keyclick toggle.
CHR$(17)	Cursor toggle.
CHR$(20)	CAPS toggle.

Colour Codes.
0 = Black
1 = Red
2 = Green
3 = Yellow
4 = Blue
5 = Magenta
6 = Cyan
7 = White

PLANET LANDER

```
1 REM ----------------------
2 REM |     PLANET LANDER    |
3 REM |     by R.A.Wright    |
4 REM ----------------------
10 PRINTCHR$(17),CHR$(6),CHR$(20)
20 CLS
30 GOSUB2000
40 GOSUB1500
50 GOTO600
97 REM -------------------
98 REM |     main loop     |
99 REM -------------------
100 X2=X1:Y2=Y1
110 I$=KEY$
120 IFI$=L$THENX1=X1-1
130 IFI$=R$THENX1=X1+1
133 IFX1=1THENX1=2ELSEIFX1=39THENX1=38
135 IFZ=0THEN160
140 IFI$=T1$THENV=V-25:F=F-15:GOTO190
150 IFI$=T2$ANDY1>2THENV=V-50:H=H+1000:Y1=Y1-1:F=F-25:GOTO190
160 IFI$=P$THENGETA$:GOTO100
180 H=H-1000:Y1=Y1+1:V=V+30
190 IFF<=10THENZ=0:F=0
200 PLOT31,24,STR$(F)
210 PLOT31,25,STR$(H):PLOT31,26,STR$(V)
215 IFH<10000THENPLOT36,25,"  "
220 IFF<100THENPLOT34,24,"  "
225 IFABS(V)<100THENPLOT34,26,"  "
230 PLOTX2,Y2,"  ":PLOTX2,Y2-1,"  "
240 IFSCRN(X1,Y1)<>32ANDSCRN(X1,Y1)<>46THEN900
250 IFSCRN(X1,Y1-1)<>32ANDSCRN(X1,Y1-1)<>46THEN900
260 IFSCRN(X1+1,Y1)<>32ANDSCRN(X1+1,Y1)<>46THEN900
270 IFSCRN(X1+1,Y1-1)<>32ANDSCRN(X1+1,Y1-1)<>46THEN900
280 IFY1=1THENY1=2
300 IFV<0THENV=0
310 PLOTX1,Y1,"JK":PLOTX1,Y1-1,"HI"
320 IFY1=20ANDX1<>19THEN900
330 IFX1=19ANDY1=21ANDV>=200THEN900
340 IFX1=19ANDY1=21THEN800
500 GOTO100
597 REM ----------------------
598 REM |    set-up scrn.     |
599 REM ----------------------
600 SH=SH+1:SK=SK+.1:IFSK>5THENSK=5
610 CLS:PLOT3,24,"score ...":PLOT3,26,"sheet ...":PLOT20,24,"fuel ......
620 PLOT20,26,"velocity ..":PLOT20,25,"height ....":PLOT2,23,22:PLOT2,0,22
625 PLOT3,25,"lives ...
630 FORR=1TO30:Q1=INT(RND(1)*37+2):Q2=INT(RND(1)*19+1):PLOTQ1,Q2,46:NEXT
640 ONSHGOTO710,1200,1220,1230,1250,1270,1290,1320,1340,1360,1390,1410,1430
710 H=19000:V=0:F=999-SK*70:Z=1
720 X1=INT(RND(1)*32+5):Y1=2:Y2=2:X2=X1
730 PLOT2,20,P1$:PLOT2,21,P2$:PLOT2,22,P3$
740 PLAY2,0,4,100
750 FORT=1TO6:PLOT16+T,20,32:PLOT16+T,19,32:PLOTX1-3+T,3,32:PLOTX1-3+T,4,32
760 PLOTX1-3+T,2,32:NEXT
770 PLOT12,26,STR$(SH+RO*13):PLOT12,24,STR$(SC):PLOT12,25,STR$(LI)
790 GOTO100
797 REM ----------------------
798 REM |    succ.landing     |
799 REM ----------------------
800 PLOT19,21,"HI":PLOT19,22,"JK":SC=SC+SH*50+F
810 FORT=17TO21:PLOTT,19,32:PLOTT,20,32:NEXT
820 IFSH=13THENSH=0:RO=RO+1:LI=LI+2:SC=SC+1000ELSE840
825 FORT=1TO32STEP2:A1=VAL(MID$(U$,T,2)):MUSIC1,A1/2,A1,0:MUSIC2,0,A1/2,0
830 MUSIC3,6,A1,10:PLAY7,4,4,600:WAIT50-T:NEXT:PLAY0,0,0,0
840 FORT=2TO19:PLOT13,T,"you've  landed":NEXT:WAIT200:PLOT2,13,12
850 PLOT3,13,"press any key to go to next screen":GETA$:GOTO600
897 REM -----------------
898 REM |    crashed     |
899 REM -----------------
900 EXPLODE
910 FORT=1TO140
920 PAPER(RND(1)*3+3):NEXT
930 WAIT30:PAPER0
940 LI=LI-1:SC=SC-75:IFSC<0THENSC=0
945 IFLI=0THEN1000
950 PLOT15,10,12:PLOT16,10,"get ready":PLOT26,10,8:WAIT100:GOTO610
997 REM --------------------
998 REM |    high score     |
999 REM --------------------
1000 CLS:INK1
1010 PLOT2,1,10:PLOT2,2,10:PLOT14,1,"high score":PLOT14,2,"high score"
1020 PLOT2,5,10:PLOT2,6,10:PLOT16,5,STR$(HS):PLOT16,6,STR$(HS)
1030 PLOT1,8,5:PLOT18,8,"by"
1040 PLOT2,11,10:PLOT2,12,10:PLOT(39-LEN(HS$))/2,11,HS$
1050 PLOT(39-LEN(HS$))/2,12,HS$
1060 PLOT1,20,5:PLOT7,20,"y o u r  s c o r e":PLOT26,20,STR$(SC)
1070 IFSC>HSTHENPLOT2,23,12:PLOT3,23,"you have beaten the high score!!"ELSE1100
1075 POKE£24E,32:PING:GETA$:WAIT500
1080 CLS:INPUT"type name then press <return>";A$
1090 IFLEN(A$)>0ANDLEN(A$)<35THENHS=SC:HS$=A$:GOTO1000ELSE1080
1100 PLOT4,26,"..press any key to continue..":GETA$:GOTO40
1196 REM--------------------
1197 REM set up ind.scrns. |
1198 REM--------------------
1199 REM ---- sheet 2 ----
```

RUNS ON ORIC

```
1200 FORT=1TOSK*3+9:Q1=INT(RND(1)*37+2):Q2=INT(RND(1)*19+1):PLOTQ1,Q2,88
1210 NEXT:GOTO710
1219 REM ---- sheet 3 ----
1220 FORT=3TO39STEP4:PLOTT,10,65:NEXT:PLOT1,10,5:GOTO710
1229 REM ---- sheet 4 ----
1230 FORT=3TO39STEP4:PLOTT,13,65:PLOTT-2,8,65:NEXT:PLOT1,13,1:PLOT1,8,1
1240 GOTO710
1249 REM ---- sheet 5 ----
1250 FORT=4TO34STEP5:PLOTT,15,"AA":PLOTT+2,10,"AAA":PLOTT,5,"AA":NEXT
1260 PLOT1,15,5:PLOT1,10,1:PLOT1,5,5:GOTO710
1269 REM ---- sheet 6 ----
1270 FORT=3TO39STEP4:PLOTT,4,65:PLOTT,8,65:PLOTT,12,65:PLOTT,16,65:NEXT
1280 PLOT1,4,1:PLOT1,8,5:PLOT1,12,5:PLOT1,16,1:GOTO710
1289 REM ---- sheet 7 ----
1290 FORT=2TO39:PLOTT,10,65:NEXT:PLOT10,10,"    ":FORT=3TO39STEP4:PLOTT,5,65
1300 PLOTT,15,65:NEXT:PLOT1,5,5:PLOT1,10,3:PLOT1,15,5:PLOT28,10,"     "
1310 GOTO710
1319 REM ---- sheet 8 ----
1320 FORT=3TO33STEP10:PLOTT,5,"AAAAAA":PLOTT,15,"AAAAAA":NEXT:PLOT1,5,5
1330 PLOT1,15,5:FORT=9TO32:PLOTT,10,65:NEXT:PLOT1,10,3:GOTO710
1339 REM ---- sheet 9 ----
1340 FORT=2TO23:PLOTT,8,65:NEXT:FORT=39TO17STEP-1:PLOTT,13,65:NEXT:PLOT1,8,3
1350 PLOT1,13,3::GOTO710
1359 REM ---- sheet 10 ----
1360 FORT=1TO15:Q1=INT(RND(1)*37+2):Q2=INT(RND(1)*15+2):PLOTQ1,Q2,88:NEXT
1370 PLOT2,6,"AAAAAAAAAAAAA":PLOT21,6,"AAAAAAAAAAAAAA":PLOT1,6,6:PLOT1,12,6
1380 PLOT12,12,"AAAAAAAAAAAA":PLOT13,7,"                ":PLOT13,8,"              "
1385 GOTO710
1389 REM ---- sheet 11 ----
1390 FORT=2TO18:PLOT5,T,65:PLOT15,T,65:PLOT25,T,65:PLOT35,T,65:NEXT
1400 FORT=8TO12:PLOT5,T,32:PLOT15,T,32:PLOT25,T,32:PLOT35,T,32:NEXT
1405 PLOT6,10,"AAAAAAAAA":PLOT26,10,"AAAAAAAAA":PLOT16,10,"AAAAAAAAA":GOTO710
1409 REM ---- sheet 12 ----
1410 FORT=3TO33STEP5:PLOTT,5,"AAA":PLOTT,15,"AAA":PLOTT+4,10,"AA":NEXT
1420 PLOT1,5,1:PLOT1,10,3:PLOT1,15,1:GOTO710
1429 REM ---- sheet 13 ----
1430 FORT=10TO13:PLOT3,T,"u   n   l   u   c   k   y   l   3":PLOT1,T,1
1440 NEXT
1445 FORT=3TO31STEP4:PLOTT+2,8,"AA":PLOTT+1,15,"AA":NEXT:PLOT1,8,3:PLOT1,15,3
1450 GOTO710
1497 REM ----------------------
1498 REM !    instructions    !
1499 REM ----------------------
1500 WAIT70:CLS:INK2:PAPER0:POKE£24E,32
1510 PLOT10,1,1:PLOT11,1,10:PLOT12,1,"planet lander.
1520 PLOT10,2,1:PLOT11,2,10:PLOT12,2,"planet lander.
1530 PLOT2,4,"Your  class Z civilian transport has
1540 PLOT2,6,"been severely damaged in an asteroid
1550 PLOT3,8,"storm.You must  quickly land it on
1560 PLOT11,10,"a nearby planet..
1570 PLOT10,11,3:PLOT15,11,"controls.
1580 PLOT9,13,"to move left ......":PLOT29,13,L$
1590 PLOT9,14,"to move right .....":PLOT29,14,R$
1600 PLOT9,15,"to thrust .........":PLOT29.15.T1$
1610 PLOT9,16,"to super-thrust ...":PLOT29,16,T2$
1615 PLOT9,17,"to pause ..........":PLOT29,17,P$
1620 PING:PLOT7,20,"are these  keys o.k.(y/n)":GETA$
1630 IFA$="y"THEN1690ELSEIFA$="n"THEN1640ELSE1620
1639 REM ---- redef.controls ----
1640 CLS:PING:PLOT5,1,"to move left ......":GETL$:PLOT25,1,L$
1650 PLOT5,2,"to move right .....":GETR$:PLOT25,2,R$
1660 PLOT5,3,"to thrust .........":GETT1$:PLOT25,3,T1$
1670 PLOT5,4,"to super-thrust ...":GETT2$:PLOT25,4,T2$
1675 PLOT5,5,"to pause ..........":GETP$:PLOT25,5,P$
1680 IFL$=R$ORL$=T1$ORL$=T2$ORR$=T1$ORR$=T2$ORT1$=T2$THEN1640ELSE1500
1690 PING:PLOT6,23,"select skill level (1 to 5)":GETA$:SK=VAL(A$)
1700 IFSK>0ANDSK<6THEN1710ELSE1690
1709 REM ---- reset variables ----
1710 SC=0:SH=0:LI=3:RO=0
1720 PLOT7,26,"press any key to continue":GETA$
1730 POKE£24E,4:RETURN
1997 REM ----------------------
1998 REM !    redef.chars     !
1999 REM ----------------------
2000 FORT=46600TO46735:READZ
2010 POKET,Z:NEXT
2020 L$="z":R$="x":T1$="=":T2$="\":P$="n"
2030 P1$="ACNQ    PCN QOANQ   ONPOBC  NP  NPOCAQ"
2040 P2$="AAAACBQOAAAOAAAAA  AAAAAAAB CN OAAAAAA"
2050 P3$="AAAAAAAAAAAAAAAAAFGAAAAAAAAAAAAAAAAAAA"
2060 U$="12100808080202100402020802101010"
2070 HS=2500:HS$="p l a n e t  l a n d e r ."
```

```
2090 RETURN
2100 DATA 63,63,63,63,63,63,63,63'A
2110 DATA 60,62,62,62,62,63,63,63'B
2120 DATA 15,31,31,31,31,63,63,63'C
2130 DATA 32,32,32,32,32,32,32,32'D
2140 DATA 1,1,1,1,1,1,1,1'E
2150 DATA 32,32,32,32,32,32,48,63'F
2160 DATA 1,1,1,1,1,1,3,63'G
2170 DATA 0,1,1,1,1,1,1,3'H
2180 DATA 0,32,32,32,32,32,32,48'I
2190 DATA 3,3,3,7,7,15,14,28'J
2200 DATA 48,48,48,56,56,60,30,6'K
2210 DATA 1,3,3,7,3,3,1,0'L
2220 DATA 32,48,48,56,48,48,32,0'M
2230 DATA 0,32,48,56,60,62,62,63'N
2240 DATA 0,1,3,7,15,31,31,63'O
2250 DATA 0,0,0,0,0,1,1,63'P
2260 DATA 0,0,0,0,0,32,32,63'Q
```

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VIDEO ADD-ONS

Mike Roberts has been examining some of the many add-ons you can get for video games and asking, do they enhance the games?

Many years ago the home video game made its first appearance, it was monochrome, had little or no sound, and could only play the games that it was originally programmed for. The next generation of games had colour and limited high resolution graphics, but most importantly — they could be programmed by buying extra cartridges to play different games. But the latest video games have a built in flexibility. They can have extra add-ons from speech synthesizers to computer keyboards.

SUPERCHARGER

Made by: Starpath
System: Atari VCS/2600
Price: £19.95

The Starpath Supercharger is an expander for the Atari VCS and plugs into the cartridge port, but there the resemblance to a cartridge ends. The unit itself is about eight inches long and slightly wider than a cartridge. On the top of the device is a handle with a lead for a cassette recorder coming out of it.

The way the Supercharger works is to replace the cartridge ROM with RAM like in a normal computer, and a cassette interface. This means that games for the Supercharger are on tape and only cost about £10.

There are a number of advantages with this device over a normal cartridge game apart from the price. The graphics with this system are superb. The quality of graphics is dependent on the amount of RAM memory that the computer or game has. The Atari normally has about 128 bytes of RAM, only some of this is used for the graphics screen. The Supercharger extends this RAM memory to 6272 bytes, some of this needs to go to store the program that is loaded in from cassette, but much more than the Atari's original RAM can be given over to the display.

The biggest test of any games system is the games that it plays. The games that are available for the Supercharger are fantastic when compared to other Atari games, and some are even graphically better than the more recent Intellivision and Colecovision systems.

There are some good points and one bad point about the games being on cassette. The bad point is having to wait 30 seconds for the game to be loaded into the computer — but computer users have been waiting up to 20 minutes for a game to load for years. The good points outweigh this though. The price of the games are a third of the normal price for games, the complexity and aforementioned graphics ability of the games is much better. One feature of some of the games is a multi-load system, this means that, say in an adventure, the game would be played in parts and you would load the game in bit by bit.

There are plenty of games available for the Supercharger, one game, Phaser Patrol, is included with the system. For reviews of Supercharger games see Video Vying elsewhere in this issue.

This unit is a real must for any serious Atari owner. The Starpath Supercharger is available from Silica Shop, 1-4 The Mews, Hatherley Rd, Sidcup, Kent. I'd also like to thank Silica Shop for the loan of the Supercharger and games for it.

INTELLIVISION MUSICAL KEYBOARD

Made by: Mattel
System: Intellivision
Price: £69.95 + £89.95 for the computer adaptor

This unit is really an add-on to an add-on. First you must plug the Intellivision computer module into the master component. This unit adds an extra three sound channels, 12K of ROM and 2K of RAM to the system and the ability to run BASIC like a real computer, this feature is discussed next month.

The musical keyboard is plugged into the port that the computer keyboard is usually plugged into. Next to this port is a tuning knob to balance the sound generator in the computer adaptor with the one in the master component. If this is not done some notes when played will sound louder than others.

The keyboard itself is a full sized synthesizer type, usually the sort of thing that you find on much more expensive dedicated music machines, but the feel of the keys is odd. They have too much movement and are far too springy.

The sound is reasonable but you cannot change voices on the sound generator, this means that you can only get a beeping noise out of the machine and not have access to other types of sound that the Intellivision can produce. One big failing of this keyboard is the software. All that is provided is a straight hit-a-key-and-a-note-sounds kind of thing with six note polyphonic sound and echoing of the note

in musical notation to the screen.

There is a cartridge that plugs in which trys to teach you music by using the keys to shoot down notes, and points being scored for accuracy, but it's only claim to fame is the ten pre-recorded tunes that come with it.

In all this device has real potential but it is spoiled by having very inadequate software not realising the full capabilities of the Intellivision. It is interesting to note that the keyboard will actually plug into the Commodore 64 and can be read by using the joystick ports. Lets hope that someone writes some decent software support around this promising piece of hardware.

EXPANSION MODULE 2 TURBO DRIVE MODULE

Made by: CBS
System: CBS Colecovision
Price: £49.95

The Colecovision Expansion Module 2, otherwise known as the Turbo Drive Module, is an eight inch steering wheel on a dashboard and a plug in accelerator pedal. The standard Colecovision joystick plugs into the side of the dashboard and functions as a gear lever.

The module itself plugs into one of the joystick ports. Four batteries are needed, I think this is a bit awkward, especially as power could have been taken from the main games module as in the case of the Roller Controller. It may have made the unit cheaper to manufacture, but in the long run it will work out expensive using batteries. There isn't even a socket for a mains adaptor.

The 'feel' of the steering wheel is excellent and having a full size control wheel in front of you certainly enhances any racing game. The game Pit Stop from Epyx can be played with either the joystick or the steering wheel, and after playing the game using both I can safely say that the Expansion module 2 makes all the difference and adds a lot to an already exciting game.

The Expansion Module also comes with the game Turbo by Sega, this is reviewed in more detail in Video Vying. It involves driving your racing car down various roads and past different types of scenery. There will be more games suitable for this module including a 'Dukes of Hazzard' game based on the series.

The price may seem a bit on the steep side but when you break it down into the component parts the price becomes quite reasonable. The start price is about £50, for this you get a cartridge, a reasonably sized steering wheel with dashboard, and an accelerator pedal on a long cord. A cartridge would cost you £30 and a good joystick could cost you up to about £20 so £20 for the controller seems quite reasonable.

One gripe I have about the steering control is that the car will only move when you are turning the wheel, so if you stop turning the wheel the car stops turning and goes in a straight line contrary to the normal behaviour of a car.

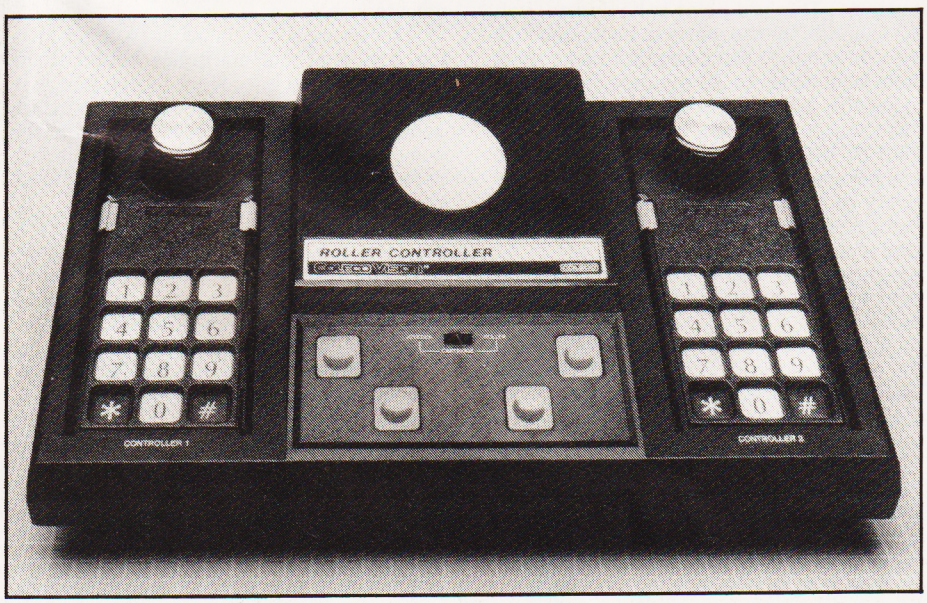
If you like driving games and are willing to spend £50 then this is a good addition to the Colecovision.

ROLLER CONTROLLER

Made by: CBS
System: CBS Colecovision
Price: £45-£50

The Roller Controller is a device more commonly known as a trak ball. The unit has a ball similar to a snooker ball in its centre, this is what is used to control the on-screen action. To control your player you simply flick the ball in whatever direction that you want to go. This kind of control is very much suited to the kind of game that requires a pointer or object to be moved around the screen. A good example of this is the first arcade game to use this technique — Missile Command by Atari — some years ago.

The CBS version of the trak ball is a large housing with the ball in the centre and holes for the joysticks to plug into. The joysticks are connected to the controller, which has its own four fire buttons to take the place of the four on the joysticks. There is an adaptor that the power lead to the Colecovision plugs into. This is so the Roller Controller can draw its power from the Colecovision supply and not have to use batteries like the Turbo module. The controller then plugs into the, now vacant, joystick ports. There is a small switch on the front of it that is marked Joystick/Roller, this means that the trak ball can be used to play ordinary games on as well as trak ball dependant games by functioning like a joystick.



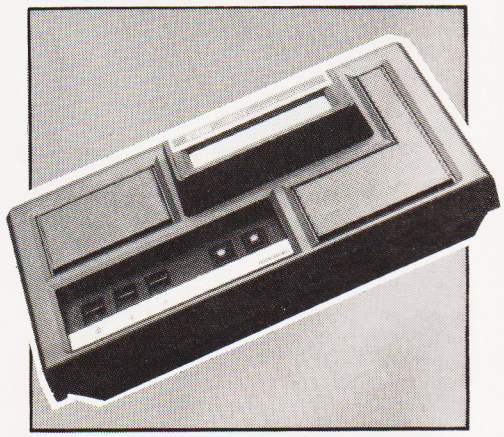
There is a game supplied with the device called Slither, there is a full review of this in Video Vying. The action of the trak ball leaves something to be desired after feeling the control of other similar units, but it was adequate to play Slither on.

Overall my impression was that it would be better to have a better joystick than to use a trak ball, but for some games, like Missile Command, a trek ball is absolutely necessary. A nice device but I think it is a matter of personal preference whether one of these will do you any good.

EXPANSION MODULE 1 — COLECOVISION/ ATARI ADAPTOR

Made by: CBS Electronics
System: CCBS Colecovision
Price: £69

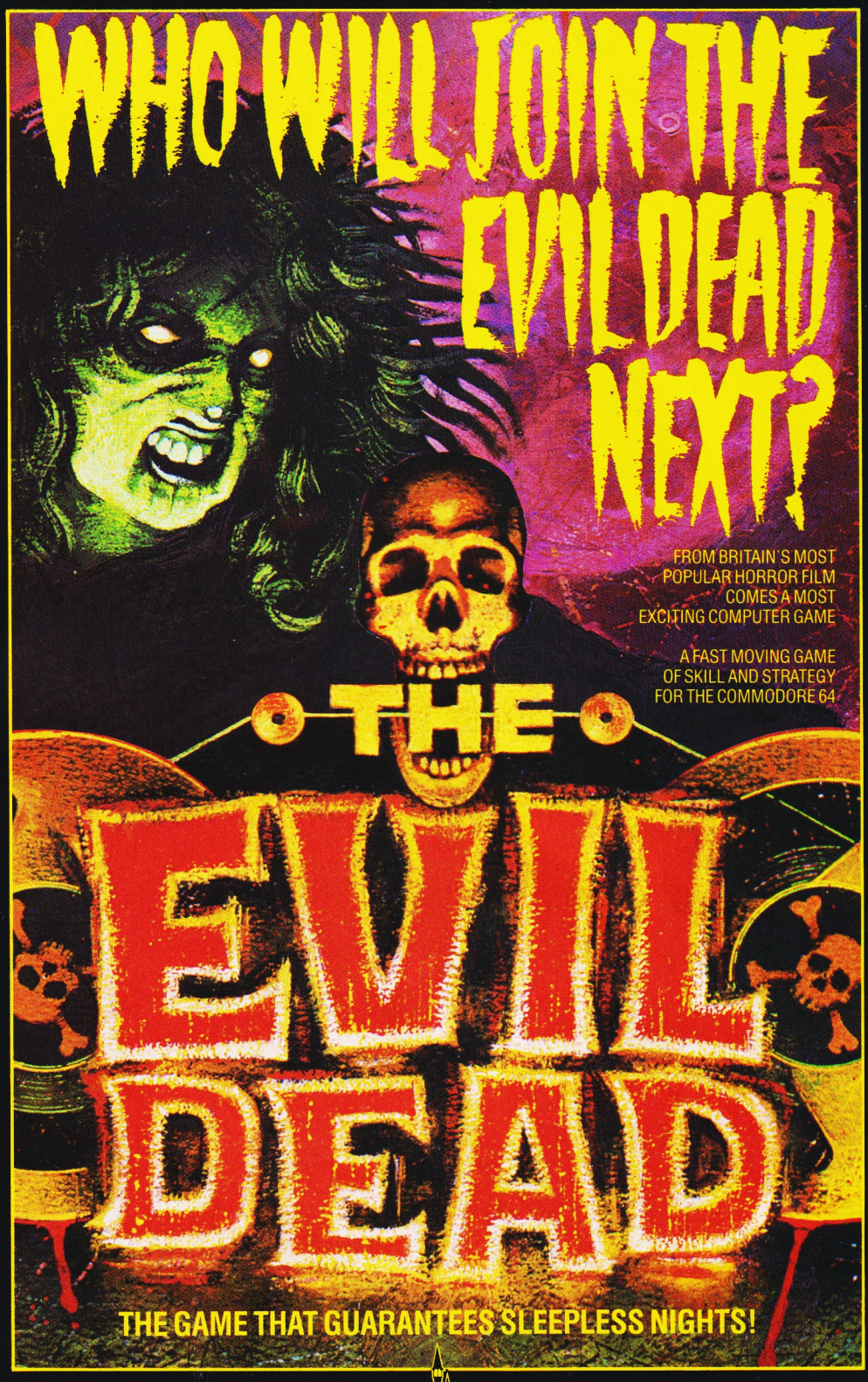
This little gadget allows the user of a CBS Colecovision to play games that were originally intended for the Atari 2600/VCS. The unit contains all the switches and sockets that the real Atari machine has including left/right difficulty, colour/black and white reset, and game reset. On the top of the box there is an Atari cartridge hiding behind a protective flap. There are two joystick ports on the front of the adaptor that the Coleco or any Atari compatible joysticks can be plugged into.



The adaptor itself is plugged into the expansion slot on the front of the Colecovision video game. This slot is what makes the Colecovision video game one of the most advanced machines on the market as it can be expanded past what it was designed for as shown by the Adam computer system that plugs into this port.

The adaptor does seem to be fully software compatible, but when it came to using Atari compatible hardware add-ons I came across some problems. With the Starpath Supercharger for instance, the screen filled with striped garbage that just changed colour when I pressed reset. When taking the same Supercharger onto an Atari it worked perfectly, so if you got something like this it may pay to check it out first as it may not work.

The Adaptor doesn't describe this unit in full detail. It actually has a second microprocessor in it (it took Acorn three years to get its second processor out for the BBC micro) and full supporting electronics. This device is a must for any Colecovision owner who is satisfied with the ability of his video game but would like to have the ability to play all the games that are available for the Atari VCS.



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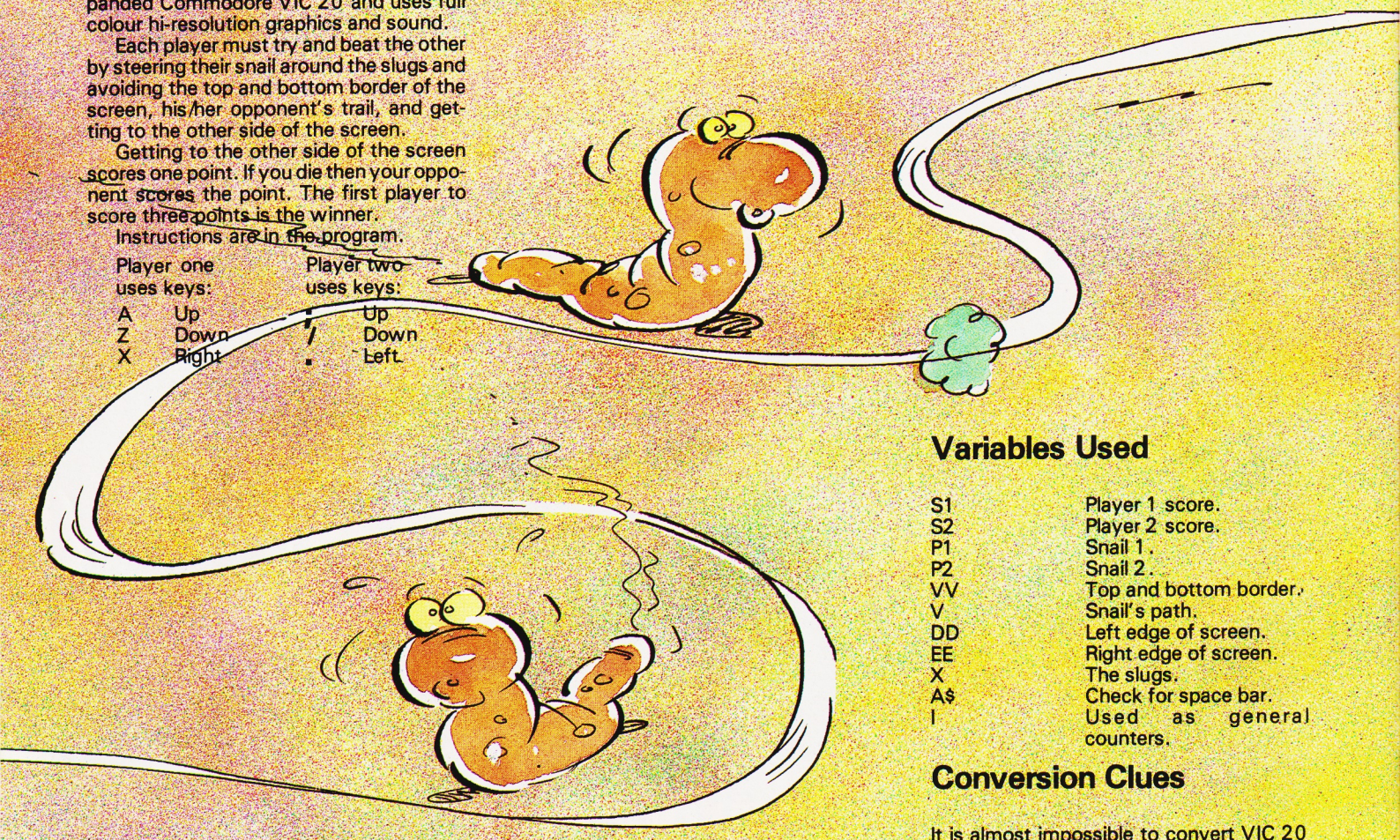
This game is for two players on the unexpanded Commodore VIC 20 and uses full colour hi-resolution graphics and sound.

Each player must try and beat the other by steering their snail around the slugs and avoiding the top and bottom border of the screen, his/her opponent's trail, and getting to the other side of the screen.

Getting to the other side of the screen scores one point. If you die then your opponent scores the point. The first player to score three points is the winner.

Instructions are in the program.

Player one uses keys:		Player two uses keys:	
A	Up	;	Up
Z	Down	/	Down
X	Right	.	Left

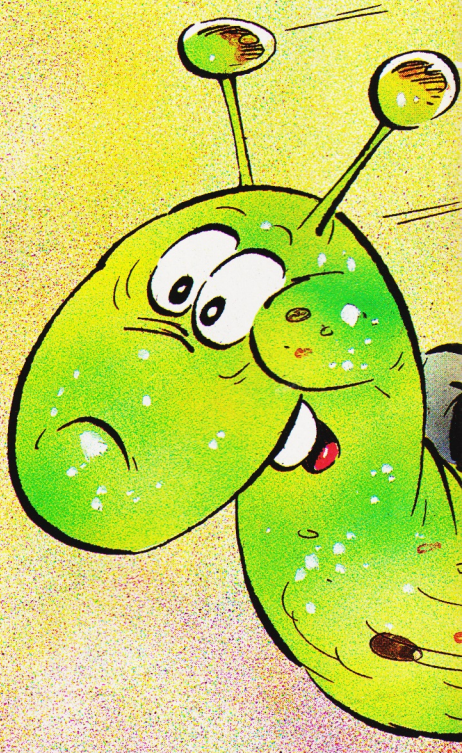


Variables Used

S1	Player 1 score.
S2	Player 2 score.
P1	Snail 1.
P2	Snail 2.
VV	Top and bottom border.
V	Snail's path.
DD	Left edge of screen.
EE	Right edge of screen.
X	The slugs.
A$	Check for space bar.
I	Used as general counters.

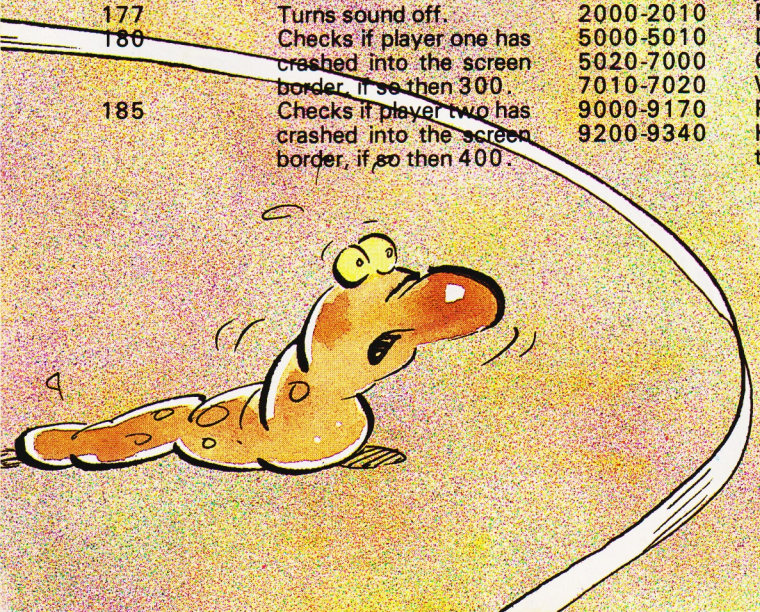
Conversion Clues

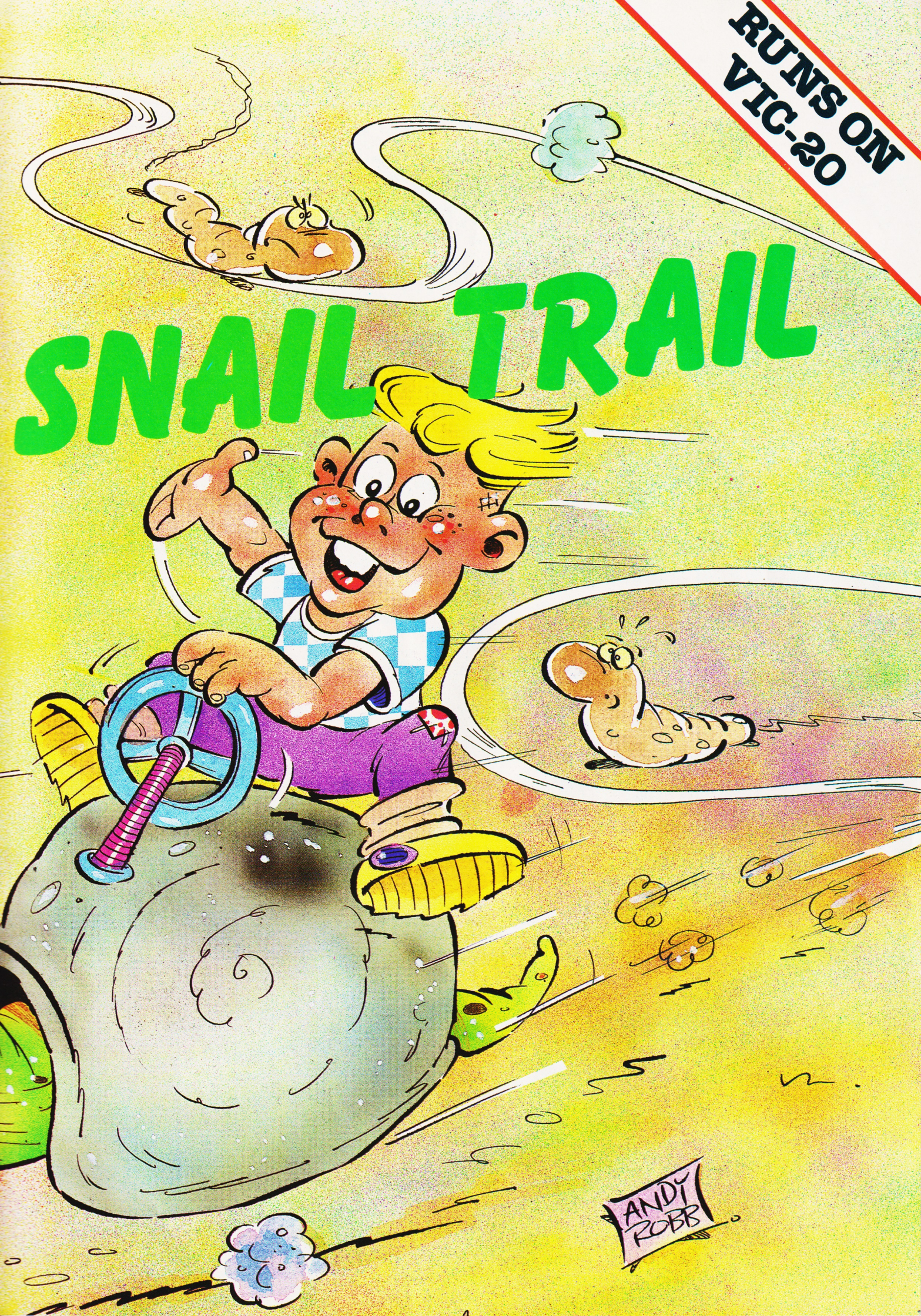
It is almost impossible to convert VIC 20 programs because there are a lot of PEEKs and POKEs involved. Unless you know what you are doing I would not recommend converting this for any other machine.



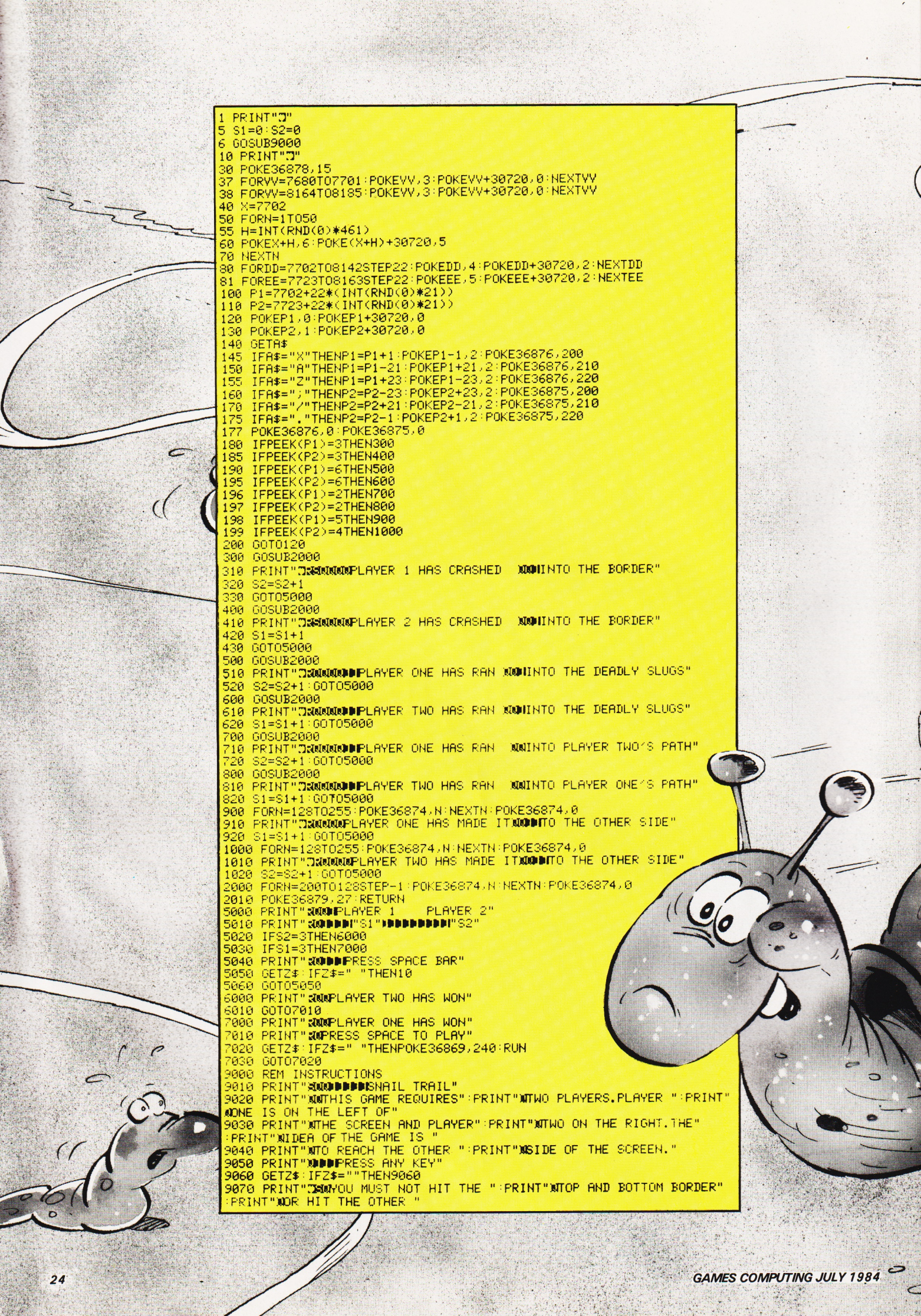
RUNdown

Line	Action
1-5	Clears screen and sets score to 0.
6	GOSUBs 9000 for instructions.
10-30	Sets volume of sound and clears the screen.
37-81	Draws the screen and POKEs the slugs onto the screen.
100	Sets position for snail 1.
110	Sets position for snail 2.
120	POKEs snail one to the screen.
130	POKEs snail two to the screen.
140-175	Checks key pressed and moves snail(s) accordingly and play different tone.
177	Turns sound off.
180	Checks if player one has crashed into the screen border, if so then 300.
185	Checks if player two has crashed into the screen border, if so then 400.
190	Checks if player one has ran into a slug if so 500.
195	Checks if player two has ran into a slug, if so then 600
196	Checks if player one has hit player two's trail, if so 700
197	Checks if player two has hit player one's trail, if so 800
198	Checks if player one has made it to the other side, if so 900.
199	Checks if player two has made it to the other side, if so 1000.
200	Returns to line 120.
300-1020	PRINTs up various messages and handles collisions between objects.
2000-2010	Plays music.
5000-5010	Display score.
5020-7000	Check for winner.
7010-7020	Wait for space bar.
9000-9170	PRINT instructions.
9200-9340	Hi-res graphics definitions.




RUNS ON VIC-20
SNAIL TRAIL
ANDY ROBB

```
1 PRINT"□"
5 S1=0:S2=0
6 GOSUB9000
10 PRINT"□"
30 POKE36878,15
37 FORVV=7680TO7701:POKEVV,3:POKEVV+30720,0:NEXTVV
38 FORVV=8164TO8185:POKEVV,3:POKEVV+30720,0:NEXTVV
40 X=7702
50 FORN=1TO50
55 H=INT(RND(0)*461)
60 POKEX+H,6:POKE(X+H)+30720,5
70 NEXTN
80 FORDD=7702TO8142STEP22:POKEDD,4:POKEDD+30720,2:NEXTDD
81 FOREE=7723TO8163STEP22:POKEEE,5:POKEEE+30720,2:NEXTEE
100 P1=7702+22*(INT(RND(0)*21))
110 P2=7723+22*(INT(RND(0)*21))
120 POKEP1,0:POKEP1+30720,0
130 POKEP2,1:POKEP2+30720,0
140 GETA$
145 IFA$="X"THENP1=P1+1:POKEP1-1,2:POKE36876,200
150 IFA$="A"THENP1=P1-21:POKEP1+21,2:POKE36876,210
155 IFA$="Z"THENP1=P1+23:POKEP1-23,2:POKE36876,220
160 IFA$=";"THENP2=P2-23:POKEP2+23,2:POKE36875,200
170 IFA$="/"THENP2=P2+21:POKEP2-21,2:POKE36875,210
175 IFA$="."THENP2=P2-1:POKEP2+1,2:POKE36875,220
177 POKE36876,0:POKE36875,0
180 IFPEEK(P1)=3THEN300
185 IFPEEK(P2)=3THEN400
190 IFPEEK(P1)=6THEN500
195 IFPEEK(P2)=6THEN600
196 IFPEEK(P1)=2THEN700
197 IFPEEK(P2)=2THEN800
198 IFPEEK(P1)=5THEN900
199 IFPEEK(P2)=4THEN1000
200 GOTO120
300 GOSUB2000
310 PRINT"□RRRRRRPLAYER 1 HAS CRASHED  RRRINTO THE BORDER"
320 S2=S2+1
330 GOTO5000
400 GOSUB2000
410 PRINT"□RRRRRRPLAYER 2 HAS CRASHED  RRRINTO THE BORDER"
420 S1=S1+1
430 GOTO5000
500 GOSUB2000
510 PRINT"□RRRRRRRPLAYER ONE HAS RAN RRRINTO THE DEADLY SLUGS"
520 S2=S2+1:GOTO5000
600 GOSUB2000
610 PRINT"□RRRRRRRPLAYER TWO HAS RAN RRRINTO THE DEADLY SLUGS"
620 S1=S1+1:GOTO5000
700 GOSUB2000
710 PRINT"□RRRRRRRPLAYER ONE HAS RAN  RRINTO PLAYER TWO'S PATH"
720 S2=S2+1:GOTO5000
800 GOSUB2000
810 PRINT"□RRRRRRRPLAYER TWO HAS RAN  RRINTO PLAYER ONE'S PATH"
820 S1=S1+1:GOTO5000
900 FORN=128TO255:POKE36874,N:NEXTN:POKE36874,0
910 PRINT"□RRRRRPLAYER ONE HAS MADE ITRRRTO THE OTHER SIDE"
920 S1=S1+1:GOTO5000
1000 FORN=128TO255:POKE36874,N:NEXTN:POKE36874,0
1010 PRINT"□RRRRRPLAYER TWO HAS MADE ITRRRTO THE OTHER SIDE"
1020 S2=S2+1:GOTO5000
2000 FORN=200TO128STEP-1:POKE36874,N:NEXTN:POKE36874,0
2010 POKE36879,27:RETURN
5000 PRINT"RRRPLAYER 1    PLAYER 2"
5010 PRINT"RRRRRR"S1"RRRRRRRRRR"S2"
5020 IFS2=3THEN6000
5030 IFS1=3THEN7000
5040 PRINT"RRRRPRESS SPACE BAR"
5050 GETZ$:IFZ$=" "THEN10
5060 GOTO5050
6000 PRINT"RRRPLAYER TWO HAS WON"
6010 GOTO7010
7000 PRINT"RRRPLAYER ONE HAS WON"
7010 PRINT"RRPRESS SPACE TO PLAY"
7020 GETZ$:IFZ$=" "THENPOKE36869,240:RUN
7030 GOTO7020
9000 REM INSTRUCTIONS
9010 PRINT"RRRRRRRRSNAIL TRAIL"
9020 PRINT"RRTHIS GAME REQUIRES":PRINT"RTWO PLAYERS.PLAYER ":PRINT"
RONE IS ON THE LEFT OF"
9030 PRINT"RTHE SCREEN AND PLAYER":PRINT"RTWO ON THE RIGHT.THE"
:PRINT"RIDEA OF THE GAME IS "
9040 PRINT"RTO REACH THE OTHER ":PRINT"RSIDE OF THE SCREEN."
9050 PRINT"RRRRPRESS ANY KEY"
9060 GETZ$:IFZ$=""THEN9060
9070 PRINT"□RRYOU MUST NOT HIT THE ":PRINT"RTOP AND BOTTOM BORDER"
:PRINT"RRR HIT THE OTHER "
```



RUNS ON VIC-20

```
9080 PRINT"{CLR}PLAYERS TRAIL,OR THE"
9090 PRINT"{DOWN}DEADLY SLUGS."
9100 PRINT"{DOWN}PLAYER 1      PLAYER 2"
9110 PRINT"{DOWN}A-UP          ;-UP"
9120 PRINT"Z-DOWN             /-DOWN"
9130 PRINT"X-RIGHT            .-LEFT"
9140 PRINT"{DOWN}FIRST UP TO THREE"
9150 PRINT"{DOWN}PRESS SPACE TO PLAY"
9160 GETZ$:IFZ$=" "THENGOTO9200
9170 GOTO9160
9200 FORI=7168TO7175:READP1:POKEI,P1:NEXTI
9210 DATA0,112,248,249,250,251,114,127
9220 FORI=7176TO7183:READP2:POKEI,P2:NEXTI
9230 DATA0,14,31,159,95,223,206,254
9240 FORI=7184TO7191:READV:POKEI,V:NEXTI
9250 DATA0,0,0,0,0,0,24,0
9260 FORI=7192TO7199:READVV:POKEI,VV:NEXTI
9270 DATA0,0,0,255,255,0,0,0
9280 FORI=7200TO7207:READDD:POKEI,DD:NEXTI
9290 DATA2,2,2,2,2,2,2,2
9300 FORI=7208TO7215:READEE:POKEI,EE:NEXTI
9310 DATA64,64,64,64,64,64,64,64
9320 FORI=7216TO7223:READX:POKEI,X:NEXTI
9330 DATA0,128,64,192,255,63,63,0
9340 POKE36869,255:RETURN
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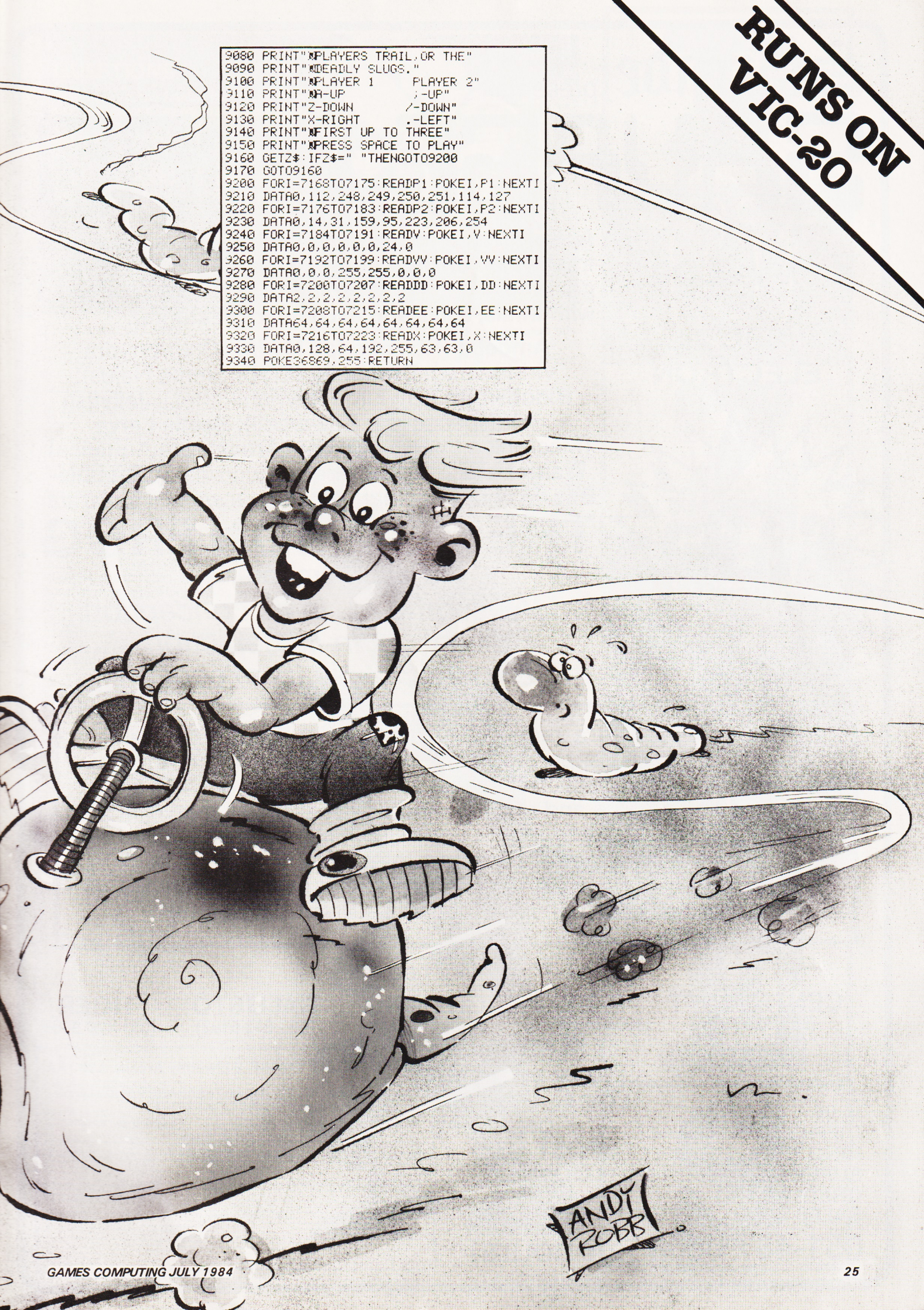

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PUZZLES

QUESTIONS

Hello again game freaks. Its torture time again as Lou and Les try to strip bare your nervous system. So shut your consoles and open your minds.

1. INTERSTELLAR INTERFERENCE!
The numbers below would get you different sorts of the same. What?

1053, 693, 1215, 200

— does this help?

285/275, 433/336, 247,500

2. AN AMAZING FEET?
Cyril Short was able to leap into bed after turning the light out before the room went dark. The lightswitch was over twelve feet from his bed so how did he accomplish this truly amazing stunt without the aid of ropes, pulleys or other mechanical devices?

3. DRINKING UP TIME
Steve O'Marvin had a grandfather clock which chimed the hours and just once for every half hour. He also had a wife who just didn't understand.

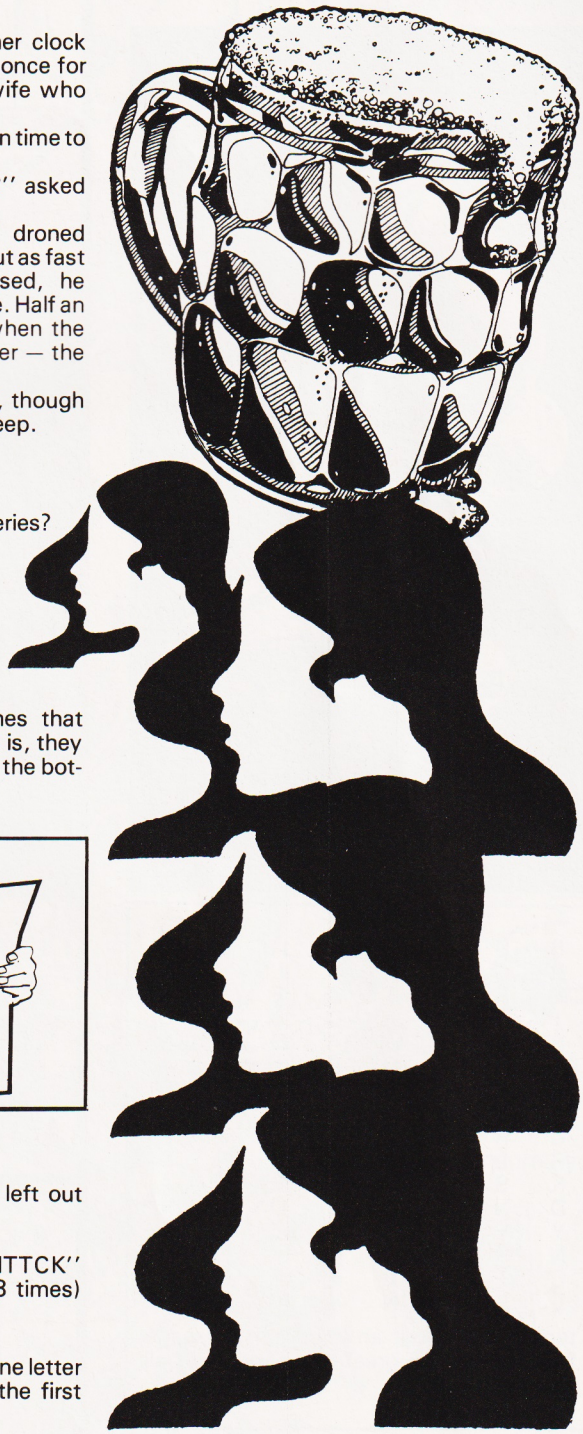
One night he staggered in, just in time to hear the clock strike once.

"And what time do you call this?" asked his wife.

"I'll have to think about that" droned Steve, whose reactions were about as fast as an uphill glacier. Time passed, he thought, and the clock struck once. Half an hour later he was still thinking when the clock struck once. Half an hour later — the clock struck once.

"I think I've got it now," he said, though his wife by this time was fast asleep.

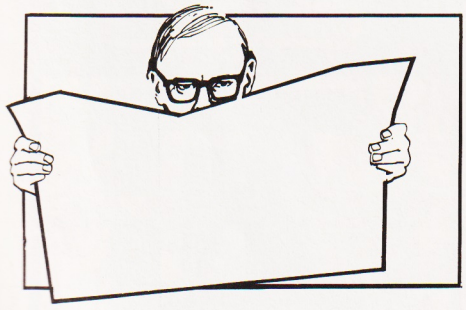
Just what time did he get home?



4. RECURRING THEMES
What is the next number in this series?

- 33333333333
- 16666666666
- 11111111111
- 08333333333

5. FRNT PGE STRY
Here are a few unlikely headlines that might have appeared. The trouble is, they all lack something. Can you get to the bottom of them?



Slimming Monthly: —
"JCKSPRTCLDTNFT" (someone left out the vowels)

Tropical Times: — "SHRCRVNTTCK" (there's just one letter left out — 8 times)

Magnate's Monthly: —
"ONAIAMAEENEPOEION" (just one letter missing — 15 times. If it helps the first word is someone's name.)

PUZZLES

6. MAN THE BOATS!
Help is at hand if you have a pocket calculator because the sum below might well cause you some distress.

$15^2 - 124 \times 5 = ?$

7. ONCE IS NOT ENOUGH
Can you think of a suitable reason why these words are placed in this order?

1. cone
2. rams
3. mate
4. sent
5. post

8. IS ANYBODY THERE!
What is the opposite of "Not in"?

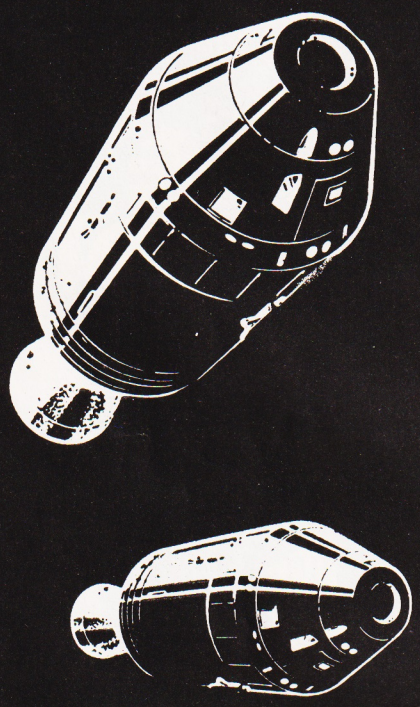
9. POINTS OF ORDER
What is the significance of these numbers:

60, 90, 108, 128·6, 135, 140

10. THE SPACEJOCK'S TRAP
Mischievous Mung, spacerace promoter and gambler set up a challenge he thought would take till the end of time to resolve itself. He assembled the crews of the two fastest star-racers, the twin ships, Exxolon and URL and suggested that they race their ships to Celsis One and back — a round trip of about three light years. Simple challenge it seemed, except for Mung's only stipulation; the winning ship would not be the first back — but the last. The proposition seemed insoluble to the crews; after all, who wanted to be hanging around in interstellar space for what could be forever, waiting for the other ship to get back first. But the prize of ten zillion VAGS was not be dismissed that easily. Mung was having a Zilutian Ball of a time watching the vexed astrojockeys churn their chips in frustration. Both crews were about to admit that they were beaten when the navigator of URL asked Mung to repeat his challenge. After Mung had willingly obliged the navigator called both crews together for a discussion. Moments later the conference was adjourned as the two crews dashed to the star racers and set off at Warp One.

Mung's time of fiendish glee was much shorter lived than he had expected. How did the race resolve itself without dragging on indefinitely?

The court of the King of Falkovia is away on holiday.

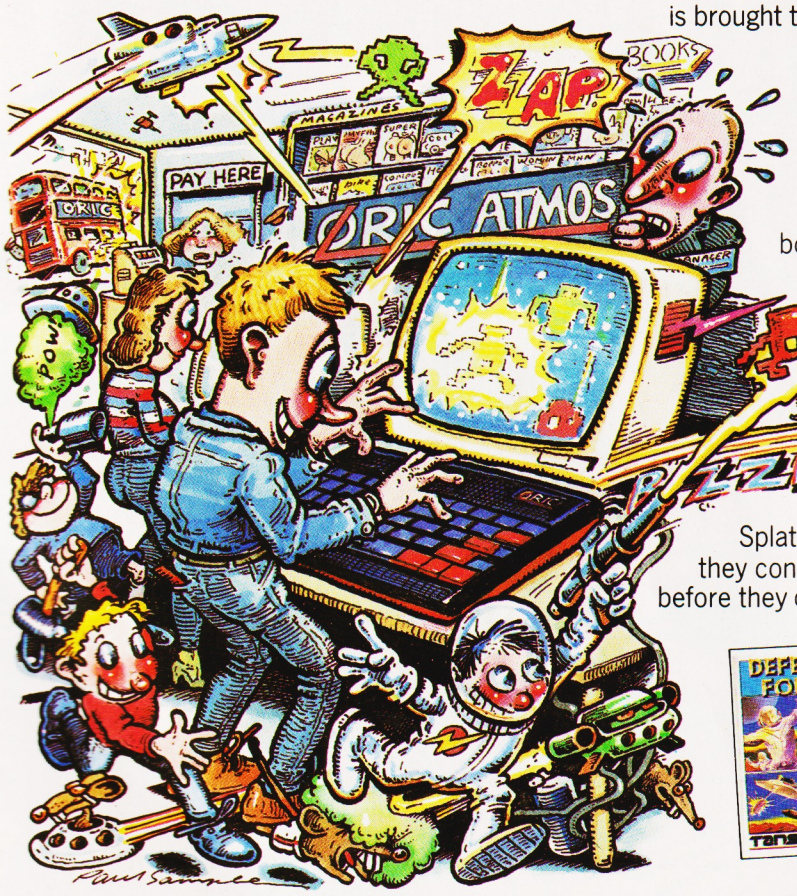


11. MEN ONLY...

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	G	U	T	E	N	B	E	R	G	A	T	Y	L	P	L
B	T	R	B	E	E	O	H	M	R	T	T	A	E	A	E
C	S	I	E	L	W	Y	N	I	W	R	A	D	E	S	O
D	A	E	L	N	T	L	E	B	O	N	W	A	D	T	N
E	I	R	L	N	O	E	L	I	L	A	G	R	I	E	A
F	L	A	C	Y	N	E	C	S	T	K	E	A	S	U	R
G	U	T	I	H	O	R	U	T	H	E	R	F	O	R	D
H	N	L	N	M	I	H	R	C	R	L	E	B	N	Y	O
I	E	O	Q	U	A	M	I	R	L	V	A	A	T	R	D
J	Y	V	A	D	L	R	E	K	S	I	M	B	L	N	A
K	T	C	S	R	Q	U	E	D	N	N	D	B	O	E	V
L	E	W	R	I	G	H	T	Y	E	U	M	A	C	H	I
M	S	F	R	A	K	L	I	N	S	F	G	U	A	N	
N	L	R	D	B	E	S	U	C	I	N	R	E	P	O	C
O	A	R	I	S	T	O	T	L	E	D	N	E	M	D	I

... well not quite. One woman does lurk in this grid which is dominated by men of science and invention. Can you find the 37 names? If you do, you will find that the letters left spell out an important message from one of the greatest scientists of all time.

The very best in arcade action-



is brought to you by Tansoft – the specialists of the Oric-1 and Atmos Computers.

The games that people are fighting for are:–

Defence Force:
Pilot your space-craft through alien territory and fight off the enemy approaching from both sides. **48K. £7.95.**

Ultima Zone:
Shoot the Walkons, avoid the bouncing Brunes and battle your way through the satellite zone. **48K. £8.50.**

Rat Splat:
A revolting game. Splat the rats in the sewer before they consume the cheese, and destroy the monsters before they consume you! **48K. £7.95.**

You have to hop your frog across a busy road avoiding the cars and lorries. Hop across the pavement then from log to log and across turtles backs, and onto your home lilly pad. There are five of these and they all must be filled before you move on-to the next screen. You have to land squarely in the centre of a lilly or you will slip into the river and drown (a drowning frog?!)

After each screen the traffic, logs, and turtles move faster. On the third screen a snake will appear on the riverbank, and this too must be avoided.

To move use joystick one. Moving it backwards or forwards makes your frog hop forwards (frogs can't hop backwards). Moving it left or right makes your frog hop left or right.

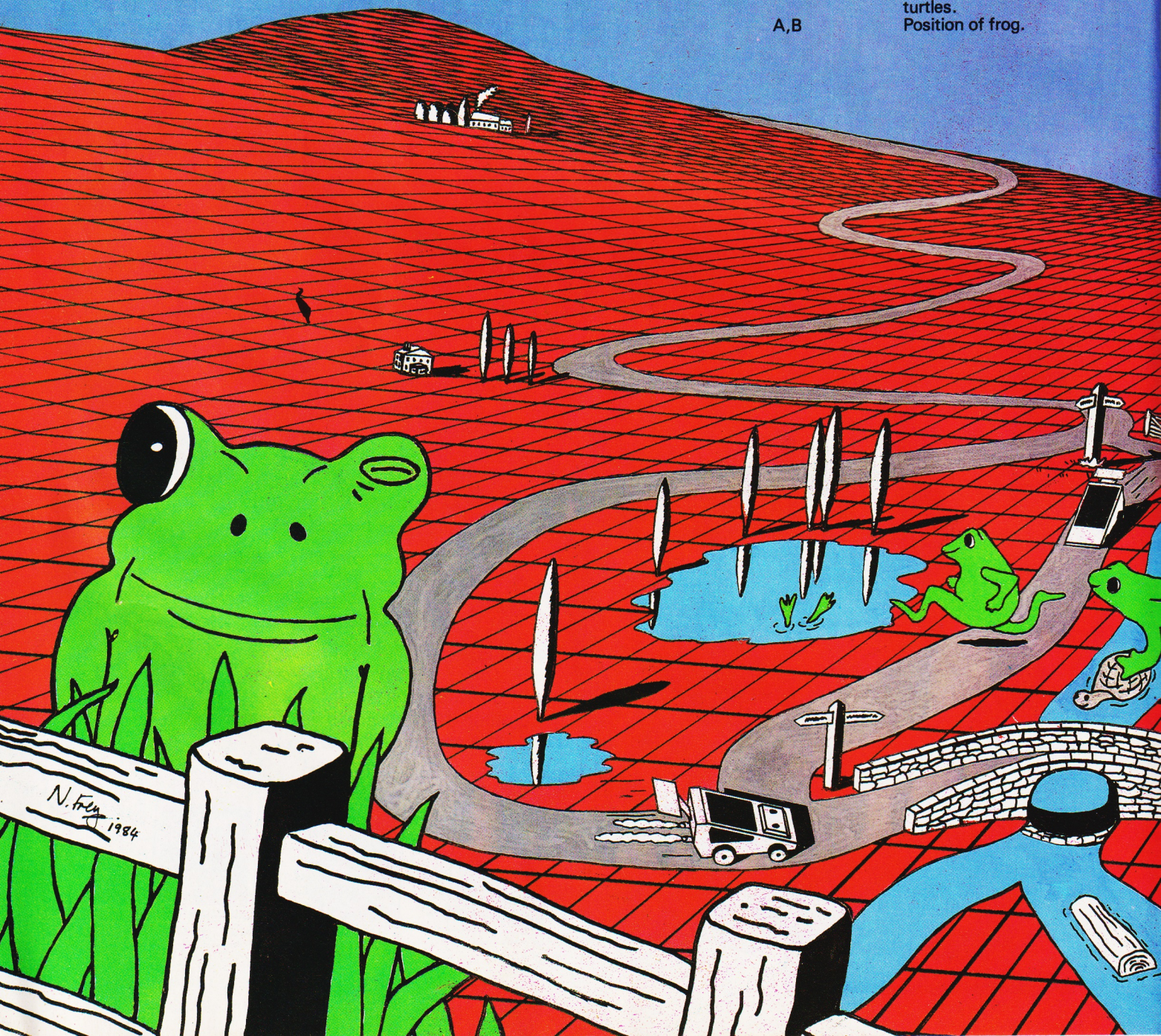
The game requires Extended BASIC to run. The program also contains some speech. The game will run with or without a speech synthesizer, but I recommend that the speech commands in lines 590, 610, and 12010 are removed if you don't have one. If you don't long pauses will be encountered on executing the program.

RUNdown

Line	Action
140-260	Define charactrers.
270	Sets variables.
280-290	Set colours.
300	Draws road, river, and river bank
310-320	Define and draw lillies.
330-360	Define and display custom letters.
380-450	Set sprites in motion.
460-470	Define frog.
500-570	Move frog across road.
580	Lose a life.
590-640	End game.
650-660	Set turtles in motion.
670-800	Move frog avross river.
810-910	Land on lilly.
920-990	Move to next screen.
1000-1150	Title screen and instructions.

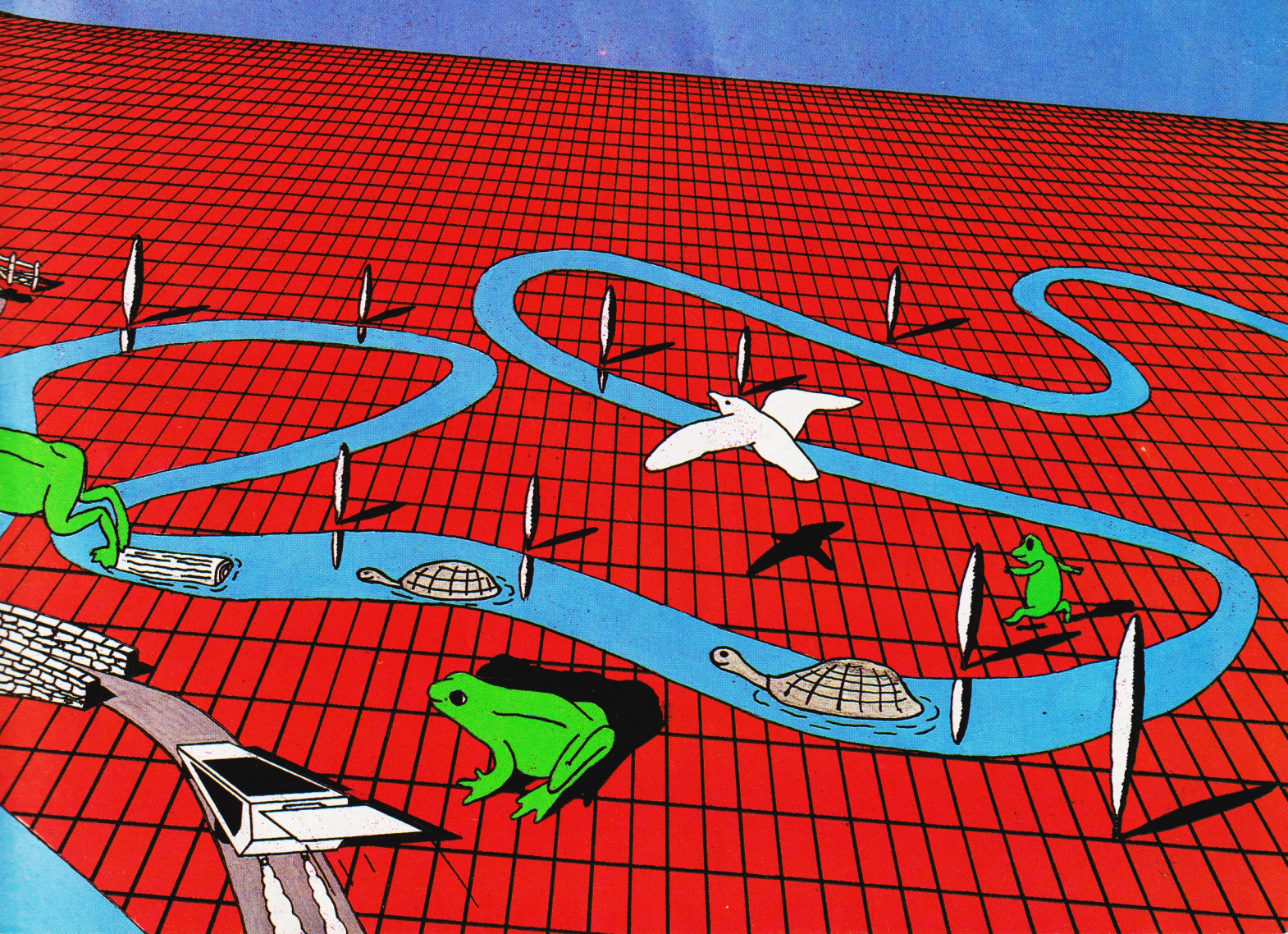
Variables Used

HS	High score.
FR	Lives.
FRL	Number of lillies filled.
SC	Score.
LE	Level.
LIL(x)	Lillies filled (=1) or empty (=0).
S(j)	Speed of logs, cars, and turtles.
A,B	Position of frog.



RUNS ON
TI-99/4A
+Extended Basic

FROGLING

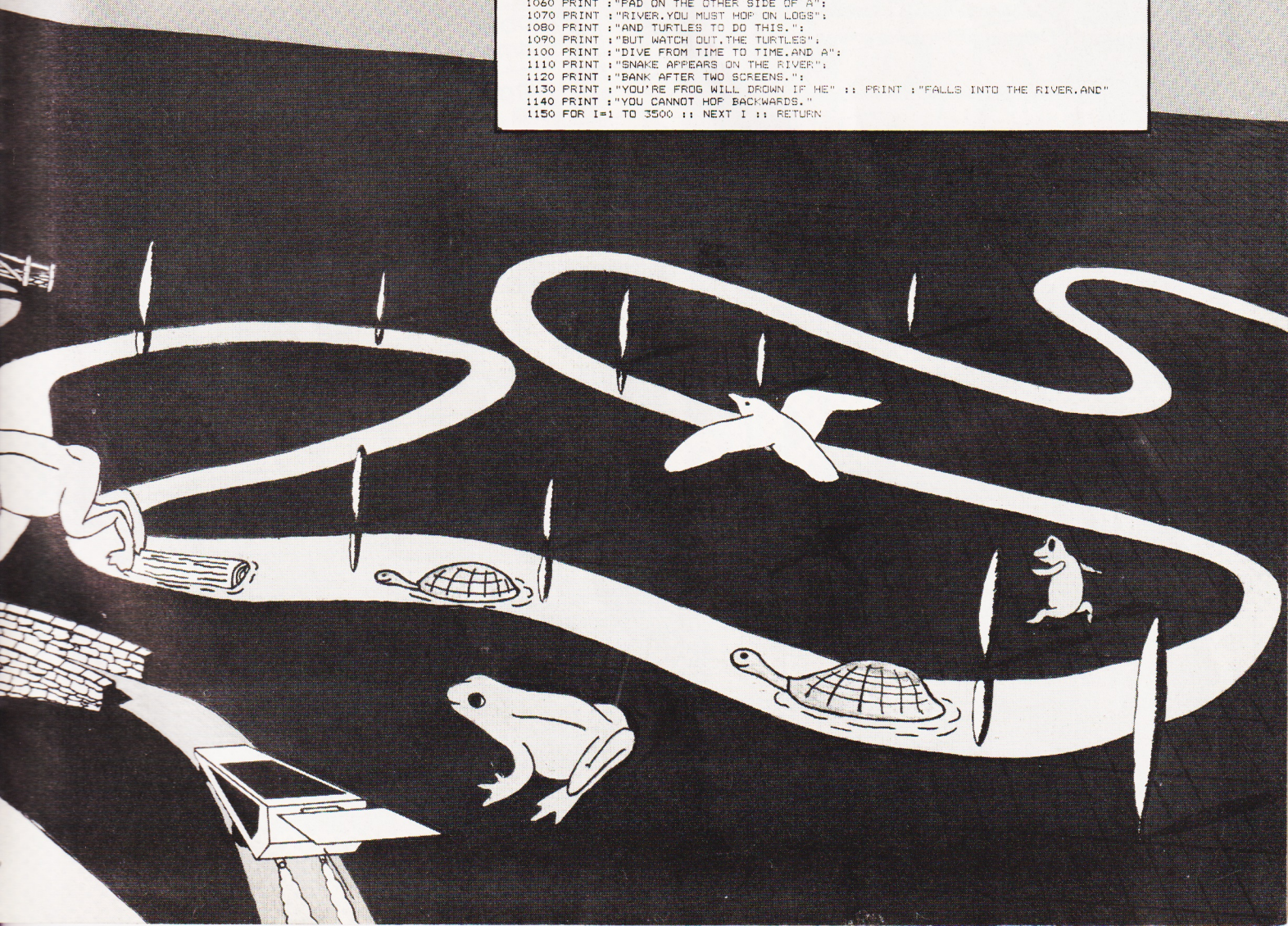


```
100 RANDOMIZE :: CALL SCREEN(INT(RND*8)+9)
110 CALL CLEAR
120 ON BREAK NEXT
130 RESTORE :: RANDOMIZE :: CALL MAGNIFY(3)
140 CALL CHAR(96,"0000000000061067C7C06610000000000000000006EEE247F7F24EE6E")
150 CALL CHAR(100,"00000000007FFFBFBFBFBFF0700000000000000007EFEFEFEFEFEFEFE")
160 CALL CHAR(104,"000000001C3F7D7D7D7D3F1C0000000000000001C7EFFFFEEEEFFFF7E1C")
170 CALL CHAR(108,"0000000018BF7E7D7D7E3F1800000000000000001BFEF7F7F7FE18")
180 CALL CHAR(112,"00000000003056AB6F1B66A0503000000000000003A0506890685A03C0")
190 CALL CHAR(116,"000000000003F7FFFFFFFF7F0000000000000000006FEFDF9F9F9F9FE")
200 GOSUB 1000
210 CALL CLEAR
220 CALL CHAR(120,"0000000000B37CB000000000000000000000000000CC33"):: HS=0
230 CALL CHAR(72,"00000000006F6F1C1C6F6F000000000000000000C0F3FCFCF3C0")
240 CALL CHAR(76,"00000000FFFFFFFFFFFFFFFF0000000000000000C0BEDFDFDFDFBEC0")
250 CALL CHAR(80,"0000000018180700C0C071B180000000000000000000E07B7BE0")
260 CALL CHAR(84,"00000000073F7F1F7F3F070000000000000000E0BCDEFEDEBEE0")
270 FRG=0 :: FR=3 :: SC=0 :: LE=1 :: CO=0 :: NM=1 :: FOR I=1 TO 5 :: S(I)=INT(RN
D*5)+4 :: LIL(I)=0 :: NEXT I :: FOR J=6 TO 9 :: S(J)=INT(RND*5)+4 :: NEXT J :: R
ESTORE
280 CALL CHAR(33,RPT$("F",16),40,RPT$("F",16),34,"",41,""):: CALL COLOR(13,4,5,1
,5,4,2,2,4,3,2,4,4,2,4,5,2,4,7,14,4)
290 CALL SCREEN(INT(RND*8)+8):: CALL COLOR(8,13,5,12,13,4)
300 CALL HCHAR(3,1,33,32*10):: CALL HCHAR(13,1,34,64):: CALL HCHAR(15,1,40,32*8
):: CALL HCHAR(23,1,41,64)
310 CALL CHAR(132,"000F1F3F3F7F7F7F",133,"7F7F3F3F1F07",134,"0080C0C0C0FCFEFE",1
35,"FEFEFCF8F0C0")
320 FOR I=3 TO 23 STEP 5 :: CALL HCHAR(3,I,132):: CALL HCHAR(3,I+1,134):: CALL H
CHAR(4,I,133):: CALL HCHAR(4,I+1,135):: NEXT I
330 DATA 003B4C546438,001030101038,003844081078,00384184438,000818287C08,007C40
3C047C,001020784438,007C0810202,003B443B4438,003B443C08
340 DATA 003C40380478,003C4440403C,007C4444447C,00784478504C,007C4078407C,007C10
10101,00784444784
350 FOR I=48 TO 64 :: READ A$ :: CALL CHAR(I,A$):: NEXT I :: DISPLAY AT(1,1)SIZE
(13):"  <=> 000" :: DISPLAY AT(1,19)SIZE(4):"?<@"
360 DISPLAY AT(1,23)SIZE(7):HS :: CALL CHAR(124,"99BDFF7E7E6681"):: CALL HCHAR(1
,16,124,3)
```

```
370 CALL CHAR(92,"3048B4B5473F0F1F",93,"1F1F0F071F13087B",94,"0C122DADE2FCF0F8",
95,"F8F8F0E0F8C8101E")
380 CALL SPRITE(£15,116,10,81,33,0,S(6),£16,116,10,81,105,0,S(6),£17,116,10,81,1
45,0,S(6))
390 CALL SPRITE(£21,116,10,49,17,0,S(8),£22,116,10,49,121,0,S(8),£23,116,10,49,2
01,0,S(8))
400 CALL SPRITE(£24,112,16,33,41,0,-1*S(9),£25,112,16,33,97,0,-1*S(9),£26,112,16
,33,185,0,-1*S(9))
410 CALL SPRITE(£18,112,16,65,73,0,-1*S(7),£19,112,16,65,169,0,-1*S(7),£20,112,1
6,65,233,0,-1*S(7))
420 CALL SPRITE(£1,96,9,161,25,0,-1*S(1),£2,104,14,161,77,0,-1*S(1),£3,108,15,16
1,161,0,-1*S(1))
430 CALL SPRITE(£7,100,11,129,73,0,-1*S(3),£8,108,6,129,137,0,-1*S(3),£9,98,7,12
9,225,0,-1*S(3))
440 CALL SPRITE(£4,72,8,145,41,0,S(2),£5,80,7,145,105,0,S(2),£6,84,6,145,193,0,S
(2)
450 CALL SPRITE(£10,76,16,113,41,0,S(4),£11,72,8,113,105,0,S(4),£12,80,15,113,17
7,0,S(4))
460 CALL CHAR(136,"0000000090B0F07030306080000000000000000090D0F0E0C0C0601")
470 CALL CHAR(140,"00000B0B090B0703030306080B0B0B0000000001010790D0E0D0C0C06010101"
:: GOTO 490
480 FOR I=1 TO 40 :: NEXT I
490 CALL SPRITE(£13,136,13,177,100)
500 CALL POSITION(£13,A,B):: IF B<=5 OR B>=251 THEN 580 ELSE CALL JOYST(1,X,Y)::
 IF A=97 AND ABS(Y)=4 THEN 510 ELSE 520
510 SC=SC+(10*LE):: DISPLAY AT(1,7)SIZE(7):SC :: CALL SOUND(50,-2,4):: GOTO 670
520 IF Y=0 THEN 560
530 CALL SOUND(50,-2,4)
540 CALL PATTERN(£13,140)
550 CALL LOCATE(£13,A-16,B):: GOTO 570
560 CALL MOTION(£13,-(ABS(Y)*4),X*4)
570 CALL COINC(ALL,C):: IF C=0 THEN CALL PATTERN(£13,136):: GOTO 500 ELSE 580
580 CALL DELSPRITE(£13):: CO=0 :: FR=FR-1 :: CALL HCHAR(1,16,32,3):: CALL HCHAR
(1,16,124,FR):: IF FR=0 THEN 590 ELSE ON NM GOTO 480,650,660
590 FOR J=1000 TO 300 STEP -150 :: CALL SOUND(90,J,1):: NEXT J :: FOR I=1 TO 20
:: NEXT I :: CALL SAY("GAMES OVER")
600 IF SC>HS THEN HS=SC :: CALL SOUND(300,900,0):: DISPLAY AT(1,23)SIZE(7):HS
```

RUNS ON TI-99/4A +Extended Basic

```
610 CALL SAY("DO YOU WANT TO PLAY AGAIN"):: CALL DELSPRITE(ALL):: CALL CLEAR
620 CALL CHARSET :: DISPLAY AT(8,10):"YOU SCORED" :: DISPLAY AT(10,12):SC :: DIS
PLAY AT(15,8):"HIGHEST SCORE IS" :: DISPLAY AT(17,12):HE
630 DISPLAY AT(24,2):"DO YOU WANT TO PLAY AGAIN ?" :: CALL KEY(3,K,E):: IF K=89
THEN CALL CLEAR :: GOTO 230
640 IF K=78 THEN CALL CLEAR :: END ELSE 630
650 CALL SPRITE(#24,112,16,33,41,0,-S(9),#25,112,16,33,97,0,-S(9),#26,112,16,33,
185,0,-S(9)):: GOTO 490
660 CALL SPRITE(#18,112,16,65,73,0,-S(7),#19,112,16,65,169,0,-S(7),#20,112,16,65
,233,0,-S(7)):: GOTO 490
670 E=6 :: NO=1
680 CALL LOCATE(#13,A-16,B)
690 CALL MOTION(#13,0,NO*(S(E))):: CALL COINC(#13,#((E*3)-3),7,0):: CALL COINC(#
13,#((E*3)-2),7,X):: CALL COINC(#13,#((E*3)-1),7,Z)
700 IF C=0 AND X=0 AND Z=0 THEN CALL SOUND(250,-5,6):: GOTO 580
710 ON NM GOTO 720,790,800
720 CALL POSITION(#13,A,B):: IF B<=5 OR B>=251 THEN 580 ELSE CALL JOYST(1,X,Y)::
 IF Y=4 AND X=0 THEN E=E+1 :: CALL SOUND(50,-2,4):: GOTO 740
730 CO=CO+1 :: IF CO=40 THEN 760 ELSE 720
740 IF NO=1 THEN NO=-1 ELSE NO=1
750 NM=1 :: A=A-16 :: IF A=17 THEN 810 ELSE CALL LOCATE(#13,A,B):: GOTO 690
760 ON INT(RND*2)+1 GOTO 770,780
770 CALL DELSPRITE(#24,#25,#26):: CO=0 :: NM=2 :: GOTO 690
780 CALL DELSPRITE(#18,#19,#20):: CO=0 :: NM=3 :: GOTO 690
790 CALL SPRITE(#24,112,16,33,41,0,-S(9),#25,112,16,33,97,0,-S(9),#26,112,16,33,
185,0,-S(9)):: GOTO 720
800 CALL SPRITE(#18,112,16,65,73,0,-S(7),#19,112,16,65,169,0,-S(7),#20,112,16,65
,233,0,-S(7)):: GOTO 720
810 CALL POSITION(#13,A,B):: IF B>14 AND B<37 AND LIL(1)=0 THEN COL=3 :: LIL(1)=
1 :: GOTO 870
820 IF B>54 AND B<76 AND LIL(2)=0 THEN COL=8 :: LIL(2)=1 :: GOTO 870
830 IF B>94 AND B<116 AND LIL(3)=0 THEN COL=13 :: LIL(3)=1 :: GOTO 870
840 IF B>134 AND B<156 AND LIL(4)=0 THEN COL=18 :: LIL(4)=1 :: GOTO 870
850 IF B>174 AND B<196 AND LIL(5)=0 THEN COL=23 :: LIL(5)=1 :: GOTO 870
860 CALL MOTION(#13,0,0):: CALL LOCATE(#13,17,B):: CALL SOUND(250,-5,6):: FOR I=
1 TO 50 :: NEXT I :: GOTO 580
870 CALL DELSPRITE(#13):: CALL HCHAR(3,COL,92):: CALL HCHAR(3,COL+1,94):: CALL H
CHAR(4,COL,93):: CALL HCHAR(4,COL+1,95):: FRG=FRG+1
880 SC=SC+(20*LE):: DISPLAY AT(1,7)SIZE(7):SC
890 IF FRG=5 THEN SC=SC+(30*LE):: FRG=0 :: DISPLAY AT(1,7)SIZE(7):SC :: GOTO 900
 ELSE 490
900 FOR I=1 TO 5 :: LIL(I)=0 :: CALL SOUND(I*40,I*110,I+1):: NEXT I
910 FOR I=3 TO 23 STEP 5 :: CALL HCHAR(3,I,132):: CALL HCHAR(3,I+1,134):: CALL H
CHAR(4,I,133):: CALL HCHAR(4,I+1,135):: NEXT I
920 LE=LE+1 :: IF LE>=3 THEN CALL SPRITE(#14,120,14,97,73,0,-S(5))
930 FOR I=1 TO 9 :: S(I)=S(I)+INT(RND*3)+1
940 IF S(I)>127 THEN S(I)=127
950 NEXT I
960 CALL MOTION(#1,0,-S(1),#2,0,-S(1),#3,0,-S(1)):: CALL MOTION(#4,0,S(2),#5,0,S
(2),#6,0,S(2))
970 CALL MOTION(#7,0,-S(3),#8,0,-S(3),#9,0,-S(3)):: CALL MOTION(#10,0,S(4),#11,0
,S(4),#12,0,S(4))
980 CALL MOTION(#15,0,S(6),#16,0,S(6),#17,0,S(6)):: CALL MOTION(#24,0,-S(9),#25,
0,-S(9),#26,0,-S(9))
990 CALL MOTION(#18,0,-S(7),#19,0,-S(7),#20,0,-S(7)):: CALL MOTION(#21,0,S(8),#2
2,0,S(8),#23,0,S(8)):: GOTO 490
1000 DISPLAY AT(8,4):"   F R O G G E R" :: DISPLAY AT(15,5):"BY" :: DISPLAY AT(1
8,7):"STEPHEN MYNARD"
1010 CALL SAY("WANT INSTRUCTIONS"):: DISPLAY AT(24,3):"DO YOU WANT INSTRUCTIONS
?"
1020 CALL KEY(3,K,E):: IF K=89 THEN 1030 ELSE IF K=78 THEN RETURN ELSE 1020
1030 CALL CLEAR
1040 PRINT :"YOU HAVE TO GUIDE A FROG":
1050 PRINT :"ACROSS A BUSY ROAD,TO A LILY":
1060 PRINT :"PAD ON THE OTHER SIDE OF A":
1070 PRINT :"RIVER.YOU MUST HOP ON LOGS":
1080 PRINT :"AND TURTLES TO DO THIS.":
1090 PRINT :"BUT WATCH OUT,THE TURTLES":
1100 PRINT :"DIVE FROM TIME TO TIME.AND A":
1110 PRINT :"SNAKE APPEARS ON THE RIVER":
1120 PRINT :"BANK AFTER TWO SCREENS.":
1130 PRINT :"YOU'RE FROG WILL DROWN IF HE" :: PRINT :"FALLS INTO THE RIVER.AND"
1140 PRINT :"YOU CANNOT HOP BACKWARDS."
1150 FOR I=1 TO 3500 :: NEXT I :: RETURN
```



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BRITAIN'S SOFTWARE CHARTS

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2	The Hobbit	Melbourne House
3	Twin Kingdom Valley	Bug Byte
4	Transylvanian Tower	Richard Shepherd
5	The Hobbit	Melbourne House
6	Battle 1917	CCS
7	Snooker	Visions
8	Demon Knight	APS
9	German is Fun	CDS
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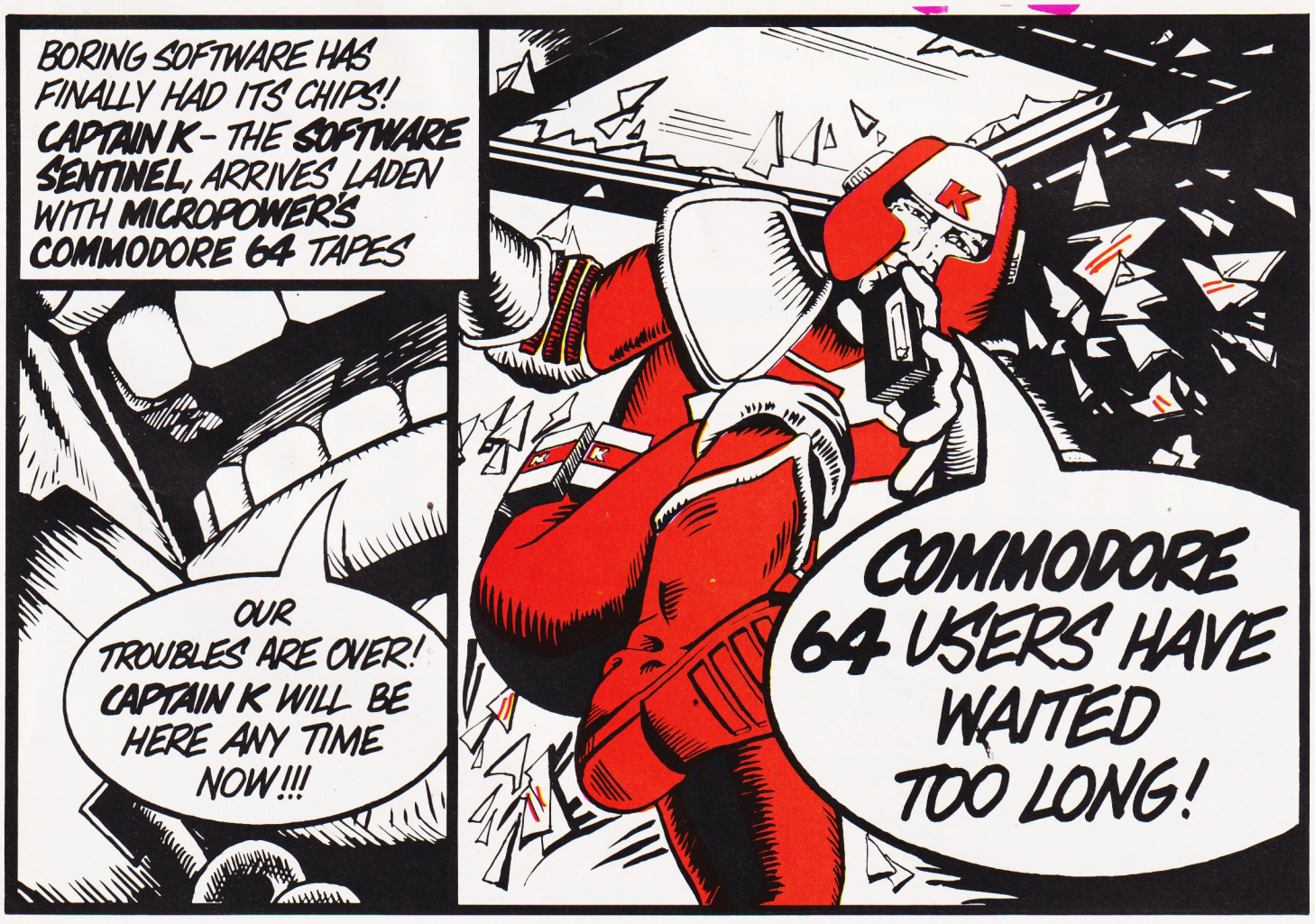
TANSOFT



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SOFTWARE

STAR TREK

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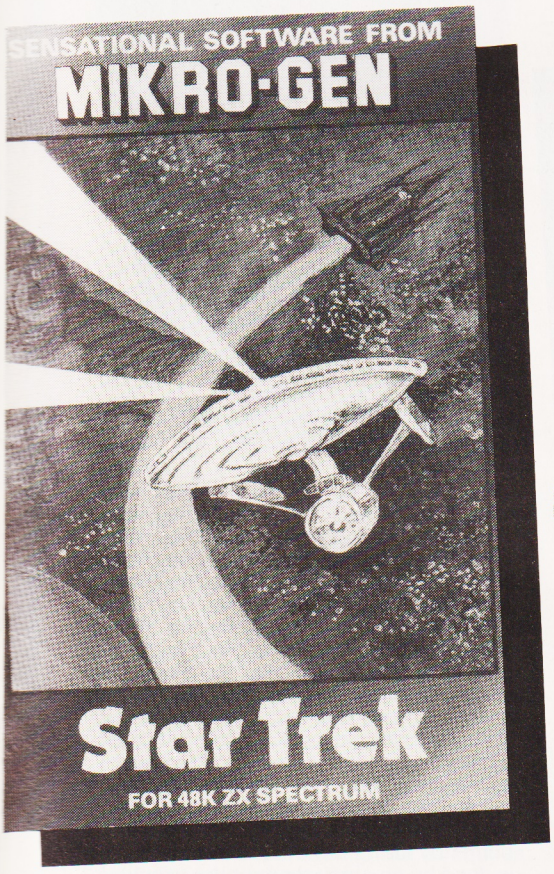
Price: £5.95

Now this is really a space adventure and a half! First on the screen you have a choice of battlegrounds (in space that is) some which are fictional (Betelgeuse sounds familiar) some not. The idea is to save the planet in question — to do this you must destroy every other alien ship or base (which are displayed on one of the many scanners) this is the only way to save the planet — however, you only have so many years to complete this in. There is a very useful pamphlet which accompanies the cassette — I advise you to read it, otherwise you might get stuck.

Your weapons include photon torpedoes, lasers, and — wait for it — an antimatter bomb! this will destroy everything on the screen including you if you are unfortunate. But one small thing which I found annoying — the movement is not very quick and while attempting a quick retrofire the aliens got in a few shots (while you type in the commands), otherwise this is an enjoyable game requiring a little patience.



PACMAN

Runs on: TI 99/4A
Made by: Atarisoft
Price: £19.99

This is Atari's rendering of the well known arcade game for the TI. For those who have managed to avoid the game thus far (which is difficult since this very version even featured recently in the heavily computerised car, Kitt, in the TV Knightrider series) a run down of the rules of play is in order.

Pacman chomps his way round a maze by eating up dots, but has to avoid four goblins which will nab him and stop his progress. After he's been got three times the game ends. Luckily Pacman can eat larger energy dots in the corners of the maze which turn the tables. When this happens the goblins become slower for a short time and can be gobbled themselves, only to be rehatched at the centre of the maze. On blinking they regain their former powers.

Each goblin is given a somewhat exaggerated identity in the 'rapper' style instructions; viz. "Blinky is fastest, so watch where he goes, Pinky is sneakier than anyone knows. Inky has quite a few tricks up his cape and Clyde cuts you off so there's just no escape." Successive mazes contain differing 'nuggets' which can be chomped for bonus points. Speeds of Pacman and goblins increase to maze five and from there on to maze nineteen+ remain steady as the Goblin's immobility time varies and decreases.

It's a one or two player game with nine levels of difficulty and the action can be halted and restarted if you need a break. Although this is a faithful version of the original Pacman game with good graphics, its belated introduction makes it seem dated and unexciting compared to more recent game developments. Check it out though, if only for nostalgia value.

POTTIT

Runs on: Commodore 64
Made by: Romik Software
Price: £6.99

Pottit is a game based loosely around the simple but addictive game of billiards. Certain modifications have been made to the original concept, which now eliminates the tedious waiting that occurs whilst one player awaits the end of the other's break.

Two joysticks are required for this game, as one controls the white ball and the other the black ball (the two balls being at opposite ends of a rectangular table). There is a single red ball in the centre of the table (between the black & white balls) surrounded by 4 pockets, one at corner of the table (for those with a black & white television the red ball appears as grey and so the game is still playable)

The object of the game is to reach the score of 50 points by potting the red ball (worth 2 points) followed by bonus points if the opponents ball is then hit. There are other bonus points awarded for hitting the opponents ball followed by the red ball, and so on and so forth.

The game therefore turns into a furious dogfight where one player attempts to prevent the other from potting the red ball by intervening with the player's own ball, whilst also keeping an eye on the coloured pointers which appear next to the score, indicating bonus points if the colour displayed is hit.

It should be noted that the acceleration of the Black & White cue balls is controlled by the length of time the joystick is held in the direction of the movement required.

This is an extremely addictive game, as long as your opponents are equally addicted. The graphics have been kept simple so as to avoid confusion with the scoring and the way in which points are awarded as bonuses.

CLASSIC ADVENTURE

Runs on: Spectrum 48K
Made by: Melbourne House
Price: £6.95

Classic adventure is as the name suggests, an adventure game. The aim of this adventure is to find the many fabulous treasures hidden, and often guarded in the 'Colossal Caves' and get them back to the building.

REVIEWS

SOFTWARE

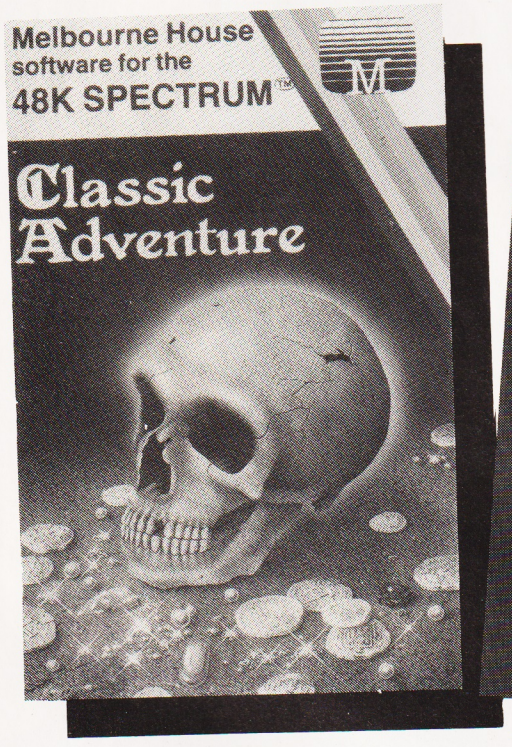
But take care, a lot of magic fills the air in and around the caves and things are not always what they seem. Many objects you may pick up can have very strange side effects and there are some very unsavoury characters about.

The magic however is not to be avoided. With skill in translating the clues and a little initiative in sticky situations the magic can be used to your advantage.

You start the game safe and sound above ground, and you have to make your way to the caves, but be careful not to go far into the forest, if you do you may never get out.

Classic Adventure incorporates a large vocabulary of verbs and nouns, which need to be expressed simply in one or two word commands such as, 'THROW AXE' or 'CLIMB' in order that the computer can understand them.

I have a particular liking for adventure games and this one fully lived up to my expectations. Classic Adventure exhibited all the usual characteristics of an adventure with many new ideas of it's own. If you like adventure games then you will certainly enjoy classic adventure, great fun for any adventurer whether a beginner or experienced.



WAR 70

Runs on: 48 K Spectrum
Made by: Cases Computer Simulations
Price: £5.95

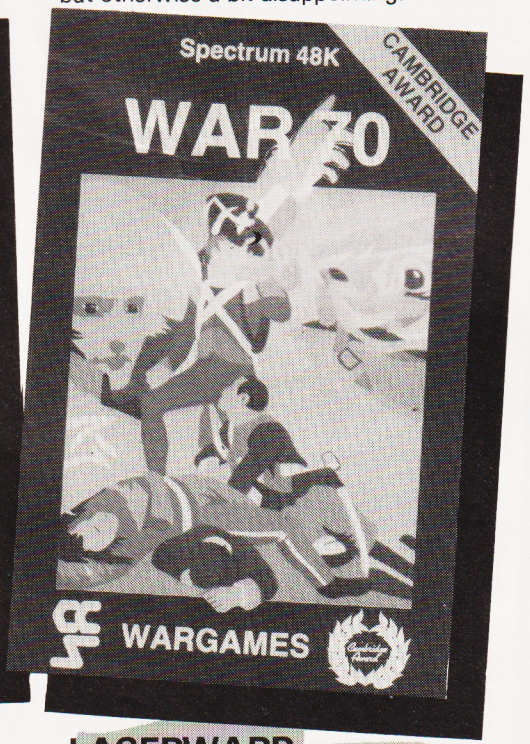
This is a Napoleonic wargame for two players. The game is part strategy, part tactics, as you each control armies within a campaign scenario, and when any of the opposing armies meet, battlefield combat ensues. The aim of the game is to capture your opponent's capital city.

The campaign map shows the positions of the two sets of armies — one red, one blue. You each start with nine armies of 167 men each, and you move these either individually or in tactical 'groups' of up to 2 armies. Each side has up to four moves in each turn at the campaign level.

When contact is made the Campaign map is replaced with a map of the battlefield of the location where contact was made. At this level your forces are split into various units comprised of a mixture of line infantry, cavalry, and an artillery unit. The geographical features are shown and consist of trees, rivers and lakes and buildings.

The instructions supplied are pretty comprehensive and are very much standard wargaming rules. Movement, firing, morale and mélee are all allowed for, and I would imagine that that was a strong reason for the game winning a 2nd prize Cambridge award in 1983.

The game is rather let down by its own fairly high aims, it really tries to cram too much in. The graphics are fiddly and difficult to look at for any time, and all movement at the battlefield level is by way of inputting XY co-ordinates which is very laborious, and not helped by the fact that the program asks for XY input but actually expects YX input. If you are patient or a real wargame fan then this would certainly be a useful addition to your software library but otherwise a bit disappointing.



LASERWARP

Runs on: 48 K Spectrum
Made by: Micro-Gen
Price: £6.95

This is very much a standard type zapping good fun arcade game which has as its main boast an enormous amount of differing types of aliens. They vary from aliens shaped like upside down bishop chess pieces, to blue diagonal strips, white dripping blobs and balls. They move down towards your vessel at the bottom of the screen, some moving straight vertically, others swoop in from the sides.

The Controls are simple, well laid out in default mode (they are also user configurable) and they are easy to use being for lateral movement and fire. Additionally you may select to use a joystick.

The aim of the game is to battle your way to screen nine and destroy a creature called the master. The game gives you a practice mode which you will probably find extremely useful if you are serious in your quest to attain that level. The master, once destroyed, will reappear but in a faster, even more deadly form. You may select a skill level from one to nine in this game.

Laserwarp certainly does have a wealth of alienism on screen but this, I think, becomes its main failing as the designers have crammed too much activity on to each screen with the result that the graphics are largely fiddly and not very easy on the eyes. Worth looking at if you are a real arcade game fanatic.

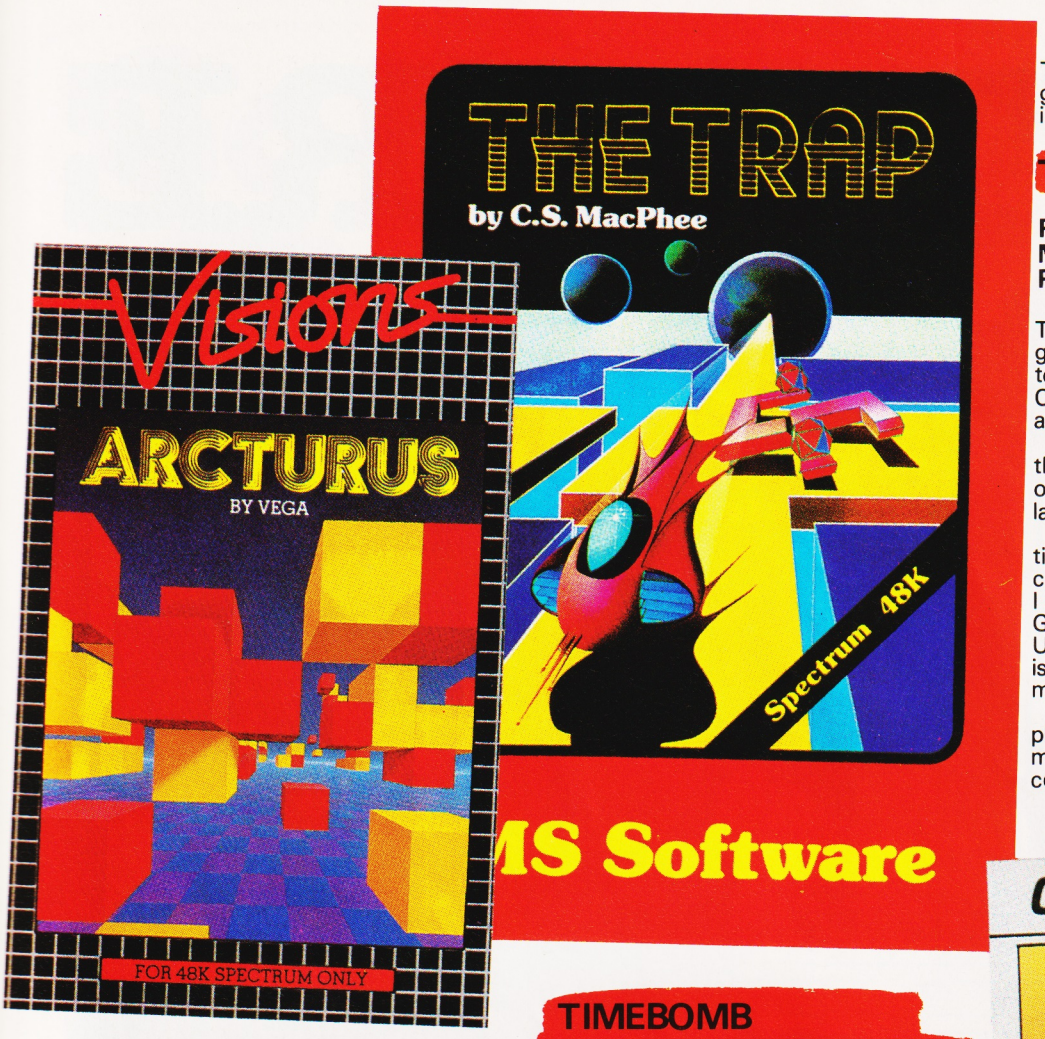
DIAMONDS

Runs on: All Ataris
Made by: English software
Price: £9.95

Diamonds is a game which gives you the identify of Digger Dan who is digging for the great white diamond, but it is not that easy. There are six other characters all out to get Dan, each with its own idiosyncracies.

There are 16 levels, each of 4 sheets, the last level reveals the great white diamond. The playing screen has several layers of differently shaded brown soil, scattered with glowing diamonds, rocks, and underground walls. You control Dan using the joystick digging on the way. To score points you collect diamonds, if you return them to the surface you get a bonus for each diamond. You can also get extra points by killing the other characters. This is done by crushing them under a rock you have undermined. If you get squashed by a rock or caught you wing your way up to heaven accompanied by a short rendition of "When the saints come marching in".

Diamonds is a colourful game with good quality sound. A pleasant change to the familiar invader-type game. The cassette also comes with an offer to enter a competition which has a real diamond, a trophy, and free software as a prize.



The instructions are easy to follow and the game easy to play. Well worth considering.

THE TRAP

Runs on: Spectrum 48 K
Made by: IMS Software
Price: £5.95

This adventure game is one of the slowest games I have ever come across. It's slow, terribly boring, and a total waste of money. On one side of the tape are full instructions and the game.

The object is to get the bridge keys and then get to citadels. The screen shows any one of nine sectors. You have several lasers and force fields.

The annoying thing is that you have a time limit and can only move about one character space a second. When I played it I got thoroughly bored on my first game. Graphics are unheard of, with about one UDG in the whole game. The idea is that it is a test of guilt to see whether you committed a murder or not.

Verdict: one of those games that you play once and get totally browned off and maddened about. It is about as addictive as counting grains of sand on the beach.

ARCTURUS

Runs on: Spectrum 48 K
Made by: Visions
Price: £6.95

Arcturus is a three dimensional two player game, man versus man, man versus machine, or machine versus machine. It is like noughts and crosses on a large scale. Four grids of sixteen squares (four by four) are placed one above the other. You have to beat your opponent by being the first to get a straight row of four.

There are ten skill levels and three modes of play. The instructions provided consist of a long list of commands, but there is little guidance given on the actual playing of the game. There is also a very long story about Arcturus. The main difficulty with this game is the time limit which sets the maximum time allowed for each move and the maximum time for each game. Each time I attempted to figure out playing instructions I lost because I ran out of time on my move. To mark your place on the squares you must move a flashing blue rectangle around the board using the cursor keys, you then press enter when it is positioned correctly. The blue rectangle however flashes very infrequently and more often than not it can not be seen.

Arcturus has great possibilities for those who like a challenge but it requires patience and fast reactions.

TIMEBOMB

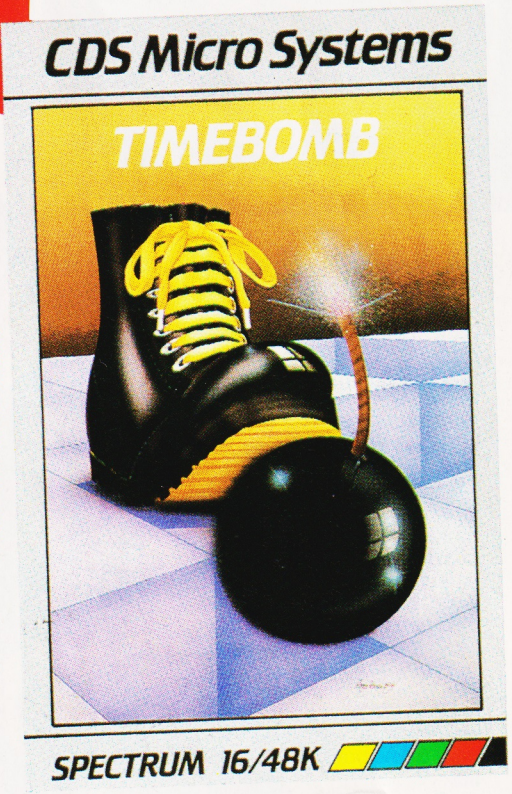
Runs on: Spectrum 16 /48 K
Made by: CDS Microsystems
Price: £5.95

The object of this game is to guide Cedric to the bombs before the time runs out. The bombs and Cedric are arranged on a large grid of blue squares. Once you step on a square it disappears and you cannot tread on it again. Also on the grid are a number of flags and skulls. The flags are bonus points but you must be careful to avoid the skulls for they mean certain death. You have three lives at the beginning of each screen and the skill level sets the speed of the game.

Once you have defused six bombs you move on to the next screen. This screen is identical to the first except there is a large boot stamping around which is liable to tread on you and kill you. On the next screen there are two boots, the following three and so on. There are five screens altogether.

I found this game very addictive once I had started lay and was amused by the ticking sound effects provided by the remainder of the tape after loading had finished. I soon found an easy method of cheating slightly, to make play easier if you have slow reactions, but I will leave you to discover that for yourselves.

The game can be played using various joysticks or the Spectrum keyboard. I recommend Timebomb by CDS Microsytsems for Spectrum owners of all ages.



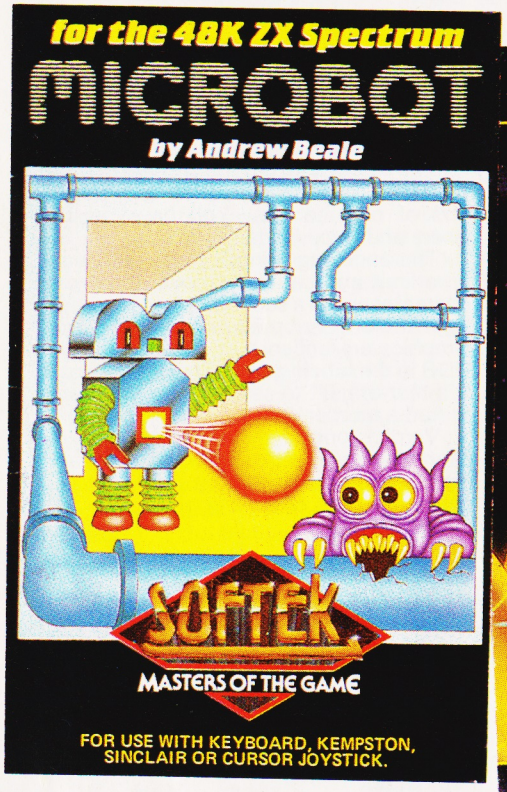
MICROBOT

Runs on: 48 K Spectrum
Made by: Softek
Price: £5.95

This is a Game in a Brain. You take the part

REVIEWS

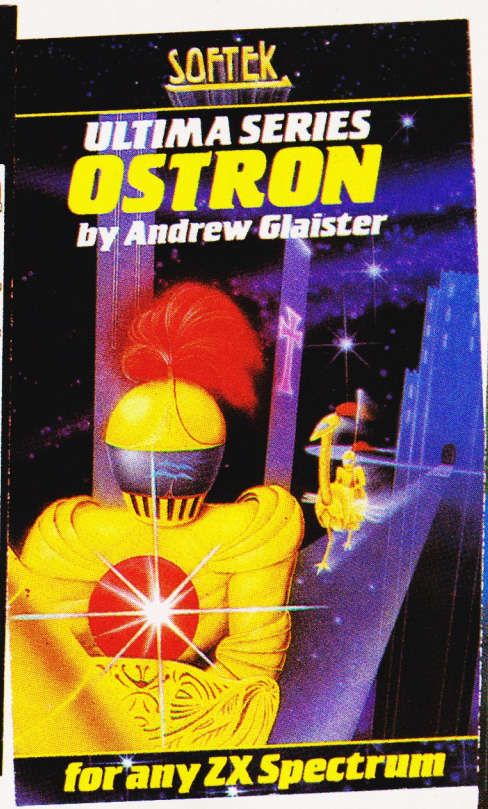
SOFTWARE



of a brain surgeon for model QT robots which are in dire need of repair. You are transported inside the robotic brain where your task is to repair leaking 'mezoplasmic' and lubrication pipes using fixation blobs which you gather up in the different sectors of the brain you pass through. There is a catch, of course. The brain is infested with bugs which you must destroy with your fixative blobs or temporarily thwart with repulsa blobs. There are both yellow and blue bugs and you must use the matching coloured fixative to destroy them. The left hand side of the screen shows you an overall view of the brain together with information on how badly damaged the different parts of the brain are.

Your aim is to get the brain damage to less than 20% at which point a part of the brain is blacked indicating the presence of an energiser you have to get before the heat of the brain goes critical and you lose a life.

The controls are simple — being up, down left, right and fire, and they are all responsive and well laid out; alternatively, the game is Sinclair, Kempston, or cursor-type joystick compatible. The graphics are clear and colourful — when you run into a fixative blob your Microbot changes colour to that of the sticky stuff, and you can sense the slime covering you. A simple game in principle, highly playable in practise.



OSTRON

Runs on: Spectrum 16/48K
Made by: Softek
Price: £5.95

Ostron is an arcade style game which is written in machine code providing high resolution graphics. You fly on Ostron (ostrich) and must do battle with various evil knights riding their buzzards. Control keys are well chosen; all the keys on the right hand side of the keyboard are for moving right, all the keys on the left hand side of the keyboard are for moving left, and all the keys on the bottom row control the flapping of the Ostron's wings and its flight. You carry a lance, likewise the knights on their buzzards. To win a one to one conflict, you and your Ostron versus a knight and his buzzard, your lance must be higher than your opponents when you touch. If they are the same height or you are lower then you die. You have five lives.

There are four different sets of evil knighs, Blue Bearers, Green Chasers, Red Knaves and Dark Knights. They score, 50 points, 75 points, 100 points, and 150 points respectively. The higher the number of points, the more difficult your opponents are to defeat. The Blue Bearers are rather unintellient and are slower than you, the Green Chasers can move at the same speed as you and tend to track you down, the Red Knaves are faster than you and the Dark Knights are the ultimate masters of their art. If you get a high enough score, a message will flash up on the screen.

Ostren is fun to play but would provide little challenge for an arcade veteran.

CREEPY CRAWLER

Runs on: ZX Spectrum
Made by: Micro-Gen
Price: £5.95

This game is for those amongst us who have fast reflexes — for a short time the caterpillar gets longer and speeds up so fast that it can hardly be seen! The idea is to shoot the caterpillar and each 'hit' removes one segment — but be warned, by shooting out the middle of each caterpillar two will be left! Beware of the spider — he kills, although a good bonus is given when you shoot him, the fly also causes problems. Points can also be obtained by blasting mushrooms (which need to be shot twice) — but lots are needed because they don't offer many points! There is a high score system — not very dramatic, and a new man at 5000 points — so whats new?

Really this program is quick and good fun, as long as you don't take it too seriously and just enjoy it, otherwise you might just get bored!

REVIEWS

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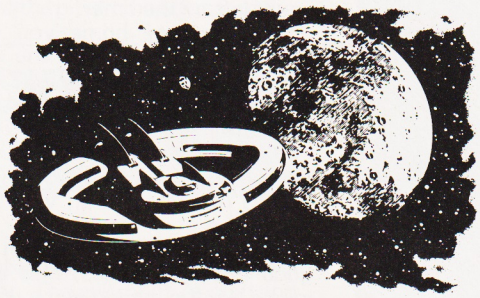

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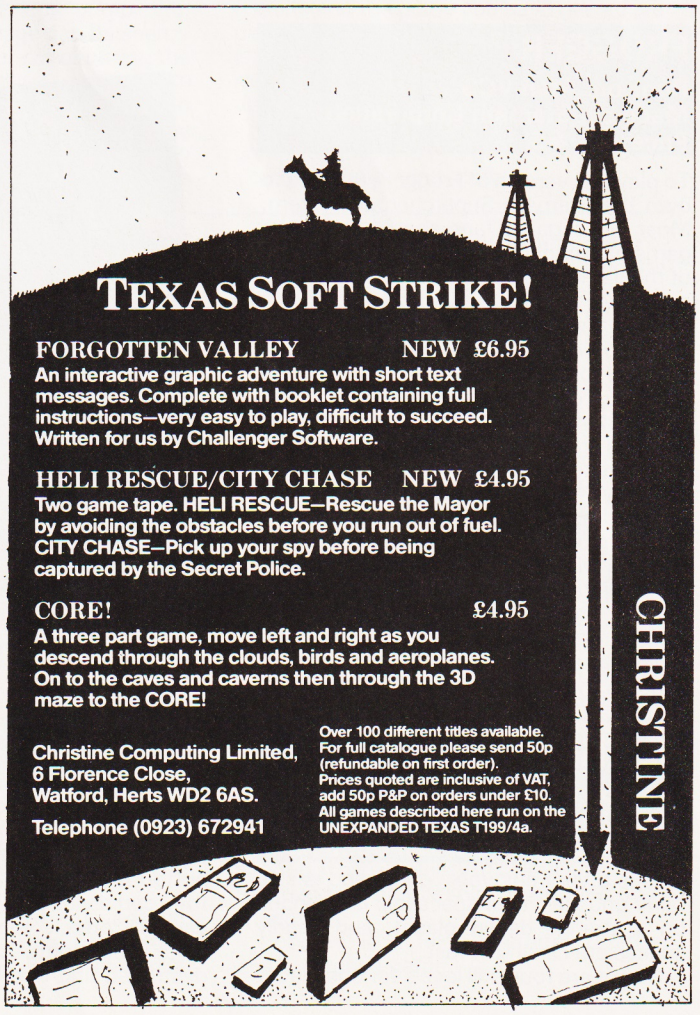

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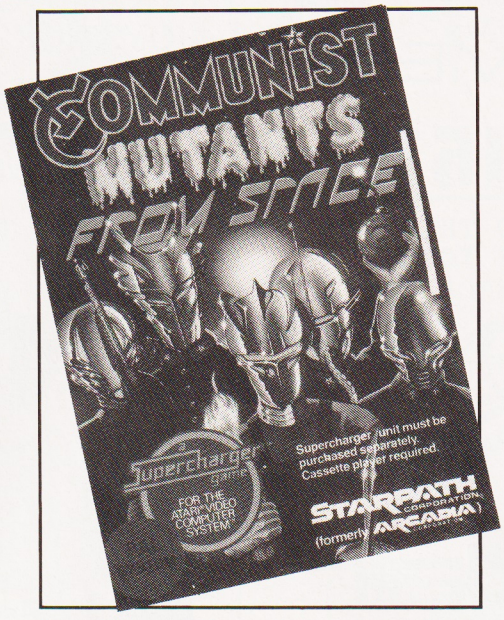
CHRISTINE

VIDEO VYING

COMMUNIST MUTANTS FROM SPACE

Runs on: Atari VCS
Made by: Starpath Corporation
Price: £9·95



Your mission in this game is to vaporize the mutant warriors before they over-run your home planet. The evil ruler of the planet Rooskee has launched an attack and the Mother creature filled with irradiated vodka, transforms helpless slaves captured on peaceful planets into bloodthirsty Communist Mutants. You have the responsibility of wiping out wave after wave of them.

As with all Starpath games the first screen you will see when you switch on the Atari will show clear instructions on how to load in the game and then, once you have done this, a deep, slow reproduction of the scales can be heard.

There are a good number of options within the game, including a choice of one to four players, difficulty levels one to nine, the choice of having shields and time warps — although you can only use these once until a new wave of mutant attackers or a cannon appears — and you may choose to have penetrating fire and guided fire. All these add up to you being able to customize your own variation of Comunist Mutants From Space.

As soon as play begins your anti-mutant cannons will be under attack. The Mother Creature will constantly create Commie Mutants. The attackers start as mutant eggs and soon hatch into nasty creatures. Some of the eggs may not hatch, but these are actually shield penetrating bombs in disguise.

Each time the mutants hit one of your cannons, it explodes and a reserve is called up. When the last cannon is destroyed the game is over, but bonus cannons are awarded on each odd-numbered wave of mutant attackers.

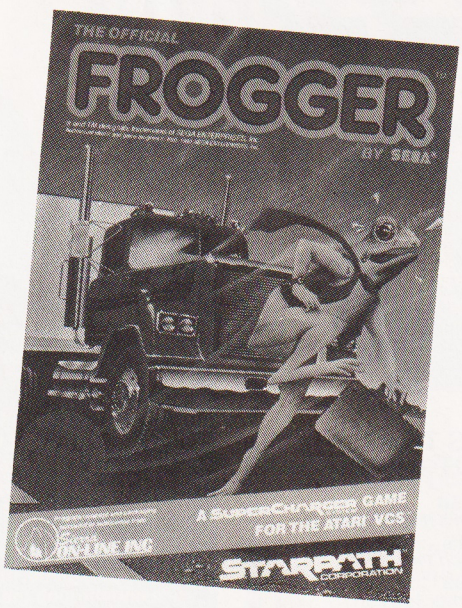
Your cannons will never run out of amunition, so you can continually shoot at the enemy. Points are gained by destroying the hairy-looking Mother Creature, the diving mutant attackers that are green and run around the screen on their little legs, mutant eggs and clearing the screen of all attackers — achieving this earns a flag.

High score and your score will be displayed at the end of each game. An instruction booklet is included with the game and also, previews of other Supercharger games can be seen on the screen if you follow the instructions in the back of the booklet on how to load them in from the tape.

This is an average space invader game. You have to shoot anything in sight and it does not live up to its wonderful title! The usual shooting and exploding noises can be heard, but the graphics are fairly good.

FROGGER

Runs on: Atari VCS
Made by: Starpath Corporation
Price: £9·95



To play this version of Frogger you have to own the Starpath Supercharger System. Most video game fans should know the game of Frogger by now, if not, the object of the game is to guide a frog across a road and a river to the safety of home.

You, the frog, have seven lives. If you are hit by a car, truck or bulldozer on the freeway, or fall into the river you lose a life and a skull can be seen where Frogger died.

The game is made difficult because the vehicles are moving at different speeds so you have to dodge round them quickly and carefully. Also, on the way across the river Frogger has to jump onto logs and turtles to avoid the water. Some turtles may dive, and you will be left to drown as the current of the water is too strong for you. In more difficult levels Frogger will encounter snakes, otters and crocodiles, and also he will not be allowed to float beyond the river edge. In the easier levels he will appear on the other side of the screen.

Each safe leap forward on the road or river is rewarded with ten points, getting into a frog bay is worth 50 points and filling all five frog bays earns you 1000 extra points, plus 10 bonus points for each count left on the timer.

On the way home you may come across a pink lady frog, she can be carried home for bonus points. Catching flies will also be rewarded. An extra life is achieved by reaching 20,000 points.

The one or two player mode can be chosen and at the end of the game scores will be displayed along with the current high score.

The Supercharger System gives very good quality graphics, plus scoring and music like the arcade game, including the tune of Yanky Doodle Dandy! Also, games only take 30 seconds to load in from a standard cassette player. Control is very good — Frogger can hop quite fast to avoid traffic, which makes it easier to stay alive.

This is an average arcade game, but with better graphics than some other Frogger versions available.

SLITHER

Runs on: Colecovision
Made by: CBS
Price: Comes with Roller Controller

This is a very enjoyable game and is also fairly unusual. Your spaceship is stranded on a strange desert planet, and deadly snakes are closing in fast.

There are four skill levels for one player and four for two players, and you have five lives each. A roller controller is needed which enables you to move your ship very easily and quickly. You can move in all directions and can fire up or down. The fire button is used to blast the serpents, but they can divide into smaller snakes which can still attack you. Boulders and cacti block your path, so these have to be destroyed first to enable you to shoot the snakes. Your ship has to travel round the boulders.

Other dangers include a red Tyrannosaurus Rex and flying pterodactyls, which are blue. The Tyrannosaurus Rex can create extra cacti when he walks across the screen and the pterodactyls try to put you off by flying near you. In higher levels you can create snakes if you hit small dark lines which travel around the screen.

VIDEO VYING

The graphics are excellent. In the background a sunset or sunrise can be seen, depending on whether it is day or night. This makes up a very colourful screen. The screen flashes when you go onto a new sheet and when your ship is destroyed it flashes different colours.

Sounds can be heard throughout the game. A tune is played when you start a new game and when your ship is exterminated. There are also noises when the Tyrannosaurus Rex walks onto the screen and when your ship fires, for example.

The space ship is very easy to control due to the roller controller, which makes the game go on for a long time as it is easy to avoid being destroyed by the snakes and dinosaurs.

I liked this game because of its originality and the colourful screen, and because of these factors all ages will enjoy playing it.

PIT STOP

Runs on: Colecovision
Made by: Epyx
Price: £29·95

This is a racing game with a difference — not only do you control your car, but you also control the men who change your tyres and fill up your petrol tank.

There are six race tracks to chose from — Monaco Grand Prix, Le Mans, the Kyalami, the Albi and the Jarama desert race. Once you have practised on these, it is on to the Mini or Grand Circuits. The Mini Circuit presents you with a random selection of three of the race tracks and then, when you have gained enough skill, the Grand Circuit, all of the six races together, can be tried.

There are a good number of choice within this game. Up to four players can play, there are three levels of difficulty — Rookie, Semi-pro and Pro, three, six or nine laps of the race can be chosen, and, of course, there is the option of a single race, Mini Circuit or the Grand Circuit.

Once you have made your choice, a picture of your car and the race track is shown on the screen. On the left hand side a radar map is shown illustrating your position and the distance to the pit. At the bottom of the screen the number of laps completed, time, speed and fuel guage can be seen.

Bumping into another car or hitting the side of the road will cause your tyres to wear out. Tyres start dark blue, change to green, light blue and finally red when they have become worn out. If you travel too long when they are red, the car explodes and the tyres fly off, signifying the end of the race. To avoid this, and also running out of petrol which brings you to a halt, you have to steer your car into the pits. Once in the pits you have to control two men who change your tyres and one man who fills your petrol tank up — he must not over-fill because otherwise the tank will explode and he will have to re-fill. To leave the pits move the cursor to the flagman who will wave you back onto the track.

I found the men very difficult to control, especially as you are racing against the clock all the time and can hear and see other cars zooming past the pit stop. The game is colourful and includes car engine and bumping noises. The pit stop crew are fairly good graphically, and all wear caps and overalls. Epyx have advertised their name many times in the game as well — there are posters with 'Epyx' written on them every few hundred yards along the track!

After each race, the Official Race Results and the purse you have gained are decided. An added advantage of this game is that you can use the Colecovision driving module, but if you do not own this, Colecovision joysticks can be used instead.

This is a fairly exciting and enjoyable game to play, and is a good one to buy if you own the driving module.

ZAXXON

Runs on: Atari VCS
Made by: CBS Electronics
Price: £29·95

Zaxxon is a 3-D space game that takes you across alien asteroid fortresses on a special mission. The evil robot Zaxxon and its fierce armies have conquered an asteroid belt. You must stop them before they enslave the galaxy.

There is a one or two player option with four skill levels each. Each player receives five fighters per game. After you have chosen the option desired, the screen will show the asteroid floor, your fighter plane, any enemies that are out to get you, including enemy planes and robots, radar towers, fuel tanks, walls that you have to guide your plane over or around, along with altitude, fuel and score indicators.

Your fighter can be controlled like a real aeroplane — push the joystick away from you to make it move down and towards you to make it rise. Press the fire button to fire an energy blast, the screen will flash when you score a direct hit. You must make your fighter swoop low to attack enemy targets and to hit fuel tanks so that you do not run out and lose a life. Once you are out of the first asteroid your fighter is attacked by Zaxxon's plane. In space you are unable to go up or down.

Next, your fighter comes up against another asteroid and you are once again allowed to rise and fall. In games played at skills two to four, some targets are protected by electronic barriers. Your fighter has to slip through gaps in the barriers to avoid the deadly electronic beams. The following task is to eliminate Zaxxon's missile. A force holds you back, so your plane can only move up, down and sideways, and the only vulnerable spot on Zaxxon is the missile under its arm, so this is the most difficult task your fighter has met so far — a great deal of accuracy and skill is needed. To eliminate Zaxxon you have to repeatedly shoot the missile, if you miss, your fighter will blow up.

Once you are past the robot Zaxxon another asteroid challenges your skill and co-ordination, and then onto another wave of enemy fighters in deep space.

You must keep defending the universe until you run out of fighters, scoring as many points as possible by hitting the targets. A bonus fighter is awarded when you reach 10,000 points.

This version of Zaxxon is much more difficult than the Colecovision version, but the graphics are not nearly as good, although there is plenty of colour and a nice touch is that all the ships have their own shadows.

Zaxxon is a fairly average, zap-the-enemy arcade game.

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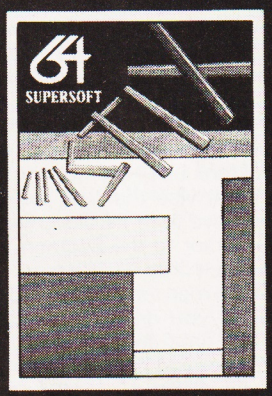

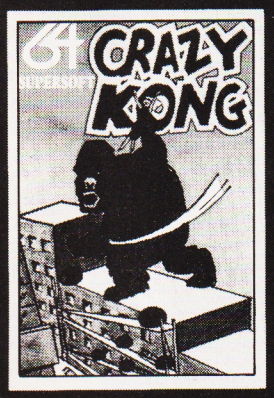

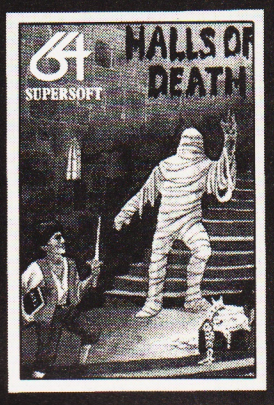

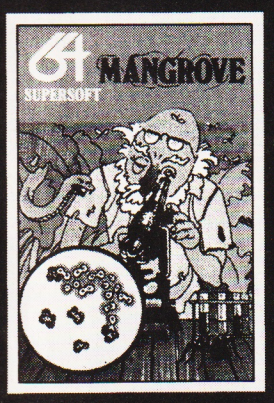

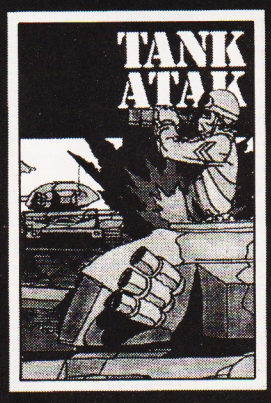

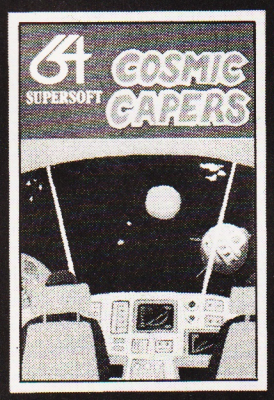

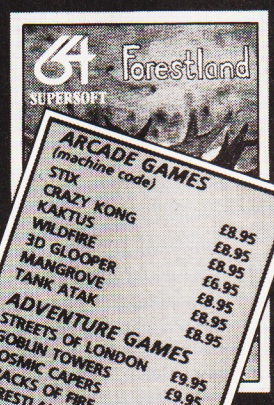

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RUNS ON SPECTRUM

The House on Misty Hill

I have recently been searching through some papers belonging to my late great grandfather and came across a note telling me about the 'House on Misty Hill'. There are reputed to be seven items of treasure to be found there and I decided to search for them immediately. Please help me in my quest by giving me instructions in the form of two word sentences such as GET LAMP.

Words Understood

N,S,E,W for directions.
SCORE, THROW,LIGHT,GET,TAKE, GRAB,READ,HELP,DROP,LEAVE,QUIT, RUB,LOOK,PRAY,PUSH,SHOOT,HIT KILL,EXAMINE,GIVE UP,SWIM, INVENTORY,CLIMB

WARNING!

I suggest that you don't read these unless you are really stuck'!

1. Don't forget the light in dark areas.
2. You can find a way with a map.
3. If you get stuck ask for help.
4. The key is useful if you get locked in!
5. A rope helps you to climb all sorts of things.
6. Prayer can get you out of some tricky situations.

RUNdown

Lines	Action
50-60	Set initial value of variables.
70-140	Dimension arrays.
150	Calls subroutine for titles.
160-170	Set variables.
190-200	Call routines to fill arrays
230-790	Main control loop — describes locations and items, asks for input and jumps to routine for action.
800-890	Fill arrays.
900-1550	Data for game.
1560-1820	Get routine.
1840-2070	Drop routine.
2080-3200	Routines for help. pray etc.

Variables Used

h,d,x,y	Used in counting loops.
p	Holds current location.
v$(x)	Holds inventory.
q$(x)	Holds location descriptions.
s(x,y)	Holds map.
g$(x)	Hold description of items found.
m(r)	Holds pointers.
b(x,1)	Holds pointer to locations.

Other variables are used as flags.

Conversion Clues

The program is written in a very standard form of BASIC. Only minor changes will be needed to implement this game on other machines.

INK, PAPER and BORDER are used to select foreground and background colours BEEP 1, 1 gives a short sound effect and can be left out entirely if you want.

The major problem with conversion to MICROSOFT type BASICS is in string manipulations.
Z$(1 TO 4) in SPECTRUM BASIC will need to be converted to LET Z$ = LEFT$(Z$,4)

Also the dimensions of the string arrays in SPECTRUM BASIC include a second number which specifies the maximum number of characters which the array element can hold. This number should be left out in versions for other machines.

The House on Misty Hill

```
10 REM ++ The House on Misty Hill ++
11 REM ++ an adventure game for the 48K Spectrum ++
12 REM ++ by S.W. Lucas ++
13 REM ++ March 1984 ++
20 LET kk=0: LET b2=0: LET k1=0: LET dd=0: LET jm=0
30 LET c=0: LET y=0: LET x=0: LET j=0: LET k=0: LET p=0
70 DIM q$(48,100)
71 DIM g$(43,100)
72 DIM s(48,4)
73 DIM v$(3,100)
74 DIM b(61,1)
75 DIM n$(61,40)
76 DIM m(54)
77 DIM x$(61,110)
78 GO SUB 2880
80 LET a$="": LET p=2: LET m=0: LET z=2
81 FOR x=1 TO 3: LET v$(x)=" ": NEXT x
82 RESTORE
83 GO SUB 540
90 GO SUB 2450
100 CLS
105 GO SUB 2970
110 IF a=7 THEN  GO TO 170
115 PRINT '" I am": PRINT q$(p): LET a$=""
120 IF s(p,1)>0 THEN  LET a$="North"
125 LET b$="": LET c$=""
130 IF s(p,2)>0 AND LEN (a$)>0 THEN  LET a$=a$+",South"
135 IF s(p,2)>0 AND LEN (a$)=0 THEN  LET a$="South"
140 IF s(p,3)>0 AND LEN (a$)>0 THEN  LET a$=a$+",East"
145 IF s(p,3)>0 AND LEN (a$)=0 THEN  LET a$="East"
150 IF s(p,4)>0 AND LEN (a$)>0 THEN  LET a$=a$+",West"
155 IF s(p,4)>0 AND LEN (a$)=0 THEN  LET a$="West"
160 IF a$="" THEN  LET a$="nowhere at all!"
170 IF a<>7 THEN  GO TO 190
171 CLS : PRINT '"WELL DONE ! You have found all  the treasures and"
172 PRINT : PRINT "rescued the princess !"
180 STOP
190 PRINT '"I can go :-"'a$
200 IF p=22 AND s(22,3)=0 THEN  PRINT x$(55)
210 LET e=0: FOR t=1 TO 38: LET pp=0:: IF b(t,1)=p THEN  LET pp=1
220 IF pp=1 THEN  GO TO 240
230 NEXT t: GO TO 260
240 IF e=0 THEN  INK 1: PRINT "I can see:-": INK 2
250 PRINT g$(t);: LET e=e+1: GO TO 230
260 INK 3: PRINT "What do I do now ?": INPUT z$
270 IF LEN (z$)>2 THEN  LET b$=z$(1 TO 2)
275 IF LEN (z$)<2 THEN  LETb$=z$
280 IF LEN (z$)>3 THEN  LET c$=z$(1 TO 3)
300 CLS : IF b$="go" THEN  PRINT "Just use a directon!": GO TO 110
305 PRINT "hold on a second"
310 IF b$="n" AND p=17 THEN  PRINT x$(31): GO TO 110
312 IF b$="n" AND s(p,1)<>0 THEN  LET p=s(p,1): GO TO 110
320 IF (b$="w" AND p=6 AND kk<>1) THEN  CLS : PRINT x$(4): GO TO 3100
330 IF (b$="w" AND p=7 AND z=1) THEN  CLS : PRINT x$(4): GO TO 3100
340 IF (b$="w" AND p=23 AND y<>1) THEN  PRINT x$(19): GO TO 3100
350 IF (b$="w" AND s(p,4)<>0) THEN  LET p=s(p,4): GO TO 110
370 IF b$="s" AND s(p,2)<>0 THEN  LET p=s(p,2): GO TO 110
380 IF b$="e" AND s(p,3)<>0 THEN  LET p=s(p,3): GO TO 110
390 IF b$="sc" THEN  GO SUB 2970: PRINT "You have scored :-";a;" out of 7 ": GO
TO 110
400 IF b$="th" THEN  GO TO 3220
405 IF b$="li" THEN  GO SUB 3260
410 IF b$="ge" OR b$="ta" OR b$="gr" THEN  GO TO 1610
415 IF b$="re" THEN  GO TO 3110
420 IF b$="he" THEN  GO TO 2410
430 IF (b$="dr" OR b$="le") AND e=7 THEN  PRINT "There's no room for any more
 here!": GO TO 110
432 IF b$="dr" OR b$="le" THEN  GO TO 1870
434 IF b$="qu" THEN  GO TO 3100
436 IF b$="ru" THEN  GO TO 3070
440 IF b$="lo" THEN  GO TO 110
442 IF b$="pr" THEN  GO TO 3050
444 IF b$="pu" THEN  GO TO 3190
450 IF b$="sh" OR b$="hi" OR b$="ki" THEN  GO TO 2120
455 IF b$="ex" THEN  GO TO 2190
460 IF c$="ins" OR c$="use" THEN  GO TO 2370
470 IF z$="give up" THEN  GO TO 3100
480 IF b$="sw" THEN  PRINT "I can't swim!": GO TO 110
485 IF c$="inv" THEN  GO TO 2290
490 IF c$="cli" THEN  GO TO 3290
500 GO TO 110
520 STOP
540 FOR h=1 TO 48
541 FOR d=1 TO 4
550 READ s(h,d): NEXT d
560 READ q$(h): NEXT h
570 FOR h=1 TO 38
580 READ g$(h): READ b(h,1): NEXT h
590 FOR h=1 TO 54
600 READ n$(h): READ m(h): NEXT h
610 RETURN
620 DATA 2,23,15,0,"on an overgrown footpath"
630 DATA 3,1,0,0,"at the doorway of a disused     mansion "
640 DATA 4,2,11,6,"in the hallway of an old mansion"
650 DATA 0,3,0,5,"in a dirty kitchen which is     full of pots which haven't be
en washed for years"
```

RUNS ON SPECTRUM

```
660 DATA 0,6,4,0,"in a large dining room which is full of cobwebs"
670 DATA 5,0,3,0,"in the library"
680 DATA 0,8,6,0,"in a secret passageway"
690 DATA 7,0,0,0,"in a laboratory "
700 DATA 8,0,0,10,"at the far end of the laboratory"
710 DATA 0,0,9,0,"in a small stockroom"
720 DATA 0,0,12,3,"in a magnificent bedroom"
730 DATA 0,0,0,11,"in an old fourposter bed!"
740 DATA 0,0,0,0,"at the bottom of a freshly dug  grave. I can't get out!"
750 DATA 13,15,0,0,"at the side of a freshly dug    grave"
760 DATA 0,0,0,1,"at the entrance to a graveyard"
770 DATA 18,22,17,15,"by some tombstones"
780 DATA 0,0,0,16,"by a crypt. There is a passage  North from here."
790 DATA 0,0,0,0,"in a shrine. The door closes    silently behind me!"
800 DATA 21,18,20,0,"at the far end of the shrine"
810 DATA 0,0,0,19,"in a small alcove"
820 DATA 0,19,0,0,"by an open cupboard"
830 DATA 16,0,0,0,"by a large open gate. The way   South is blocked by a snarli
ng  dog"
840 DATA 1,26,0,24,"on a narrow path"
850 DATA 0,0,23,25,"on a path leading through the  bog"
860 DATA 0,47,24,0,"in an old barn. There is a      secret passage leading Sout
h"
870 DATA 23,0,0,0,"by the side of a moat. There is a drawbridge on the far side
"
880 DATA 26,28,0,0,"on the drawbridge"
890 DATA 27,31,0,0,"in the castle courtyard"
900 DATA 0,0,28,30,"by an Oak door"
910 DATA 0,0,0,0,"in the dungeons. Somebody has   locked the door behind me. Is
  there no escape?"
920 DATA 28,34,40,32,"by a magnificent Beech Door"
930 DATA 0,35,31,33,"in the servants quarters"
940 DATA 0,0,32,0,"in the restroom. It's full of   strange looking people in a
   dazed trance"
950 DATA 31,0,39,0,"in the kitchen"
960 DATA 32,36,0,38,"in a dormitory"
970 DATA 35,0,37,0,"in a passage"
980 DATA 0,0,0,36,"in a changing room"
990 DATA 0,0,35,0,"in the bathroom"
1000 DATA 0,0,0,34,"in the pantry"
1010 DATA 0,0,41,31,"in a passage"
1020 DATA 0,42,45,40,"by the stocks. There is a man inthem yelling 'HELP'"
1030 DATA 41,43,0,0,"at the entrance to a small lift"
1040 DATA 42,0,0,0,"in a hand operated lift!"
1050 DATA 45,0,0,0,"in a room full of pottery"
1060 DATA 46,44,0,41,"in the entrance to a small      building "
1070 DATA 0,45,0,0,"in an art studio. There's a     passage leading North from h
ere but a ghost blocks the way!"
1080 DATA 25,0,0,0,"in a tiny cave. There's not much here except dust"
1090 DATA 22,0,0,0,"in an eerie tomb"
1110 DATA "a box of matches",4,"a candle",5,"a pen in a golden holder on the boo
kcase",6
1140 DATA "a monster",8,"a bunch of keys",9,"a valuable *ANTIQUE*",10
1170 DATA "a pair of slippers",11,"a pillow",12,"a pile of bones",13
1200 DATA "a shovel",14,"a snarling wolf",15,"a vase of flowers",16
1230 DATA "a solid *PLATINUM* statue 10 m  tall"
1231 DATA 18
1240 DATA "a *SILVER* casket",20,"a rusty handcart",21,"a signpost",23,"a map",6
1280 DATA "a book of ghost stories",25,"a lever",26,"a *PEWTER* trinket",25,"a d
runk who will not let me pass West!",28
1320 DATA "a bottle of spirits",4,"a beautiful *PRINCESS*",30,"a copy of 'monste
r gazette'",32,"a coffin",15
1360 DATA "a tray of drinks",33,"a sharp knife",34,"some food",4
1390 DATA "a packet of crisps",35,"a uniform",37,"a bar of soap",38
1420 DATA "a pile of tomatoes",41,"a rope with a hook at one end",43,"a pair of
electrodes",45
1450 DATA "a *JEWEL* encrusted casket",13,"some pots",44,"a painting",45,"a *CRU
CIFIX*",48
1480 DATA "candle",2,"pen",3,"monster",4,"bunch",5,"keys",5,"valuable",6,"antiqu
e",6,"pair",7,"slippers",7
1510 DATA "pillow",8,"pile",9,"bones",9,"shovel",10,"wolf",11,"vase",12,"flowers
",12,"platinum",13,"statue",13,"silver",14,"casket",14,"handcart",15,"signpost",
16,"map",17,"book",18,"lever",19,"pewter",20,"trinket",20
1580 DATA "drunken man",21,"matches",1,"bottle",22,"spirits",22,"beautiful",23,"
princess",23,"magazine",24,"coffin",25
1590 DATA "tray",26,"drinks",26,"knife",27,"food",28,"crisps",29,"uniform",30,"b
ar",31,"soap",31,"rotten",32,"tomatoes",32,"rope",33,"hook",33,"pair",34,"electr
odes",34
1600 DATA "jewel",35,"casket",35,"pots",36,"painting",37,"crucifix",38
1610 GO SUB 2800
1620 IF l=1 THEN  GO TO 1640
1630 GO TO 110
1640 LET e=0
1650 FOR h=1 TO 38: IF b(h,1)=p AND b(m(r),1)=p THEN  LET e=1
1660 NEXT h
1670 IF e=0 THEN  PRINT "I'm sorry I don't see it ": GO TO 110
1680 CLS : IF p=18 AND (r=18 OR r=17) AND j=0 THEN  PRINT x$(1): GO TO 110
1690 IF p=18 AND (r=17 OR r=18) AND j=1 THEN  PRINT x$(30): LET g$(13)="a *PLATI
NUM* statue on a handcart": LET g$(15)=""
1700 IF (r=4 OR r=5) THEN  LET lz=1
1710 IF r=23 THEN  LET dc=1
1720 IF (r=46 OR r=47) THEN  LET jm=1
1730 IF r=1 AND k1=1 THEN  LET kk=1
1735 IF r=1 AND k1<>1 THEN  LET z=1
1740 IF p=6 AND r=2 THEN  PRINT x$(2): PRINT x$(3): LET s(6,4)=7: GO TO 110
```

```
1750 IF r=29 THEN  LET bz=1
1760 IF p=8 AND r=3 THEN  PRINT x$(6): GO TO 110
1770 IF p=30 AND (r=32 OR r=33) AND k=0 THEN  PRINT "The princess  refuses!": GO
 TO 110
1780 IF p=30 ND (r=32 OR r=33) THEN  PRINT "The princess is happy to come"
1790 IF p=23 AND r=22 THEN  PRINT "Sorry it's stuck!": GO TO 110
1800 IF p=28 AND r=28 THEN  PRINT "He's too heavy!": GO TO 110
1810 IF p=15 AND r=14 THEN  PRINT "That makes it mad. It attacks   me . I AM DEA
D!": GO TO 3100
1820 LET e=0
1830 FOR d=1 TO 3: IF v$(d,1)=" " THEN  LET v$(d)=g$(m(r)): LET e=1: LET d=5
1840 NEXT d
1850 IF e=0 THEN  PRINT x$(38): GO TO 110
1860 LET b(m(r),1)=0: GO TO 110
1870 GO SUB 2800
1880 IF l=1 THEN  GO TO 1900
1890 PRINT "I don't see a ";l$: GO TO 110
1900 LET e=0
1910 FOR d=1 TO 3: IF v$(d)=g$(m(r)) THEN  LET v$(d)=" ": LET e=1
1920 NEXT d
1930 IF e=1 THEN  GO TO 1950
1940 PRINT x$(7): GO TO 110
1950 LET b(m(r),1)=p
1960 CLS
1970 IF r=1 THEN  LET z=0: LET kk=0
1980 IF r=29 THEN  LET bz=0
1990 IF r=23 THEN  LET dc=0
2000 IF r=46 OR r=47 THEN  LET jm=0
2010 IF p=8 AND (r=48 OR r=49) THEN  PRINT x$(9): LET s(8,2)=9: LET g$(4)="": LE
T g$(34)="": GO TO 110
2020 IF (r=4 OR r=5) THEN  LET lz=0
2030 IF p=28 AND (r=36 OR r=37) THEN  PRINT x$(17): GO TO 110
2040 IF p=28 AND (r=30 OR r=31) THEN  PRINT x$(18): LET g$(21)="a drunk on the f
loor": LET s(28,4)=29: GO TO 110
2050 IF p=22 AND r=39 THEN  PRINT x$(26): GO TO 110
2060 IF p=18 AND r=21 THEN  LET j=1: GO TO 110
2070 IF p=30 AND (r=15 OR r=16) THEN  PRINT "The princess smiles!": LET k=1: GO
TO 110
2080 IF p=22 AND r=40 THEN  PRINT x$(27): LET s(22,2)=48: LET q$(22)="by a large
 open gate"
2090 IF p=15 AND r=39 THEN  PRINT x$(28): LET s(15,3)=16: LET s(15,1)=14: LET g$
(11)="": GO TO 110
2100 IF p=15 AND r<>39 THEN  PRNT x$(29): GO TO 3100
2110 GO TO 110
2120 GO SUB 2800: IF p=15 AND r=14 THEN  PRINT x$(29): GO TO 3100
2130 IF p=8 THEN  PRINT x$(8): GO TO 110
2140 IF p=28 AND (r=27 OR r=28) THEN  PRINT "I'm not that cruel!": GO TO 110
2150 IF b$="ki" THEN  PRINT "Just what sort of person do you think I am ?": GO T
O 110
2155 IF p=22 THEN  PRINT "missed !": GO TO110
2160 PRINT x$(34): GO TO 110
2170 GO SUB 2800
2180 PRINT "What?": GO TO 110
2190 GO SUB 2800
2200 IF p=8 AND r=3 THEN  PRINT x$(6): GO TO 110
2210 IF p=45 AND r=41 THEN  PRINT "I don't think they will fit me!": GO TO 110
2220 IF p=45 AND r=53 THEN  PRINT "It's so horrible! I can't stand to look at it
!": GO TO 110
2230 IF p=15 AND r=35 THEN  PRINT x$(23): GO TO 110
2240 IF p=41 AND (r=44 OR r=45) THEN  PRINT x$(24): GO TO 110
2250 IF p=15 AND r=14 THEN  PRINT "It looks VERY vicious and it is HUNGRY!": GO
TO 110
2260 IF p=37 AND r=41 THEN  PRINT "It's an official ghost hunters  uniform!": GO
 TO 110
2270 IF p=16 AND (r=15 OR r=16) THEN  PRINT "They are very beautiful. I think th
e princess might like these": GO TO 110
2280 PRINT x$(22): GO TO 110
2290 PRINT "I have :-"'"a note,"'"a lamp with no battery, a gun   and "
2300 LET f=0
2310 FOR h=1 TO 3: IF v$(h,1)<>" " THEN  PRINT v$(h): LET f=1
2320 NEXT h
2330 IF f=0 THEN  PRINT "nothing else"
2340 GO TO 110
2350 IF p=16 AND b(21,1)=16 AND b(15,1)<>40 THEN  PRINT x$(48): LET s(16,2)=21:
LET s(16,3)=22: LET b(21,1)=0: GO TO 110
2360 GO TO 110
2370 GO SUB 2800
2380 IF p=30 AND r=5 AND lz=1 THEN  PRINT x$(12): LET s(30,3)=29: GO TO 110
2385 IF p=30 THEN  PRINT "How?": GO TO 110
2390 IF p=8 AND (r=48 OR r=49) THEN  PRINT x$(13): GO TO 3100
2400 PRINT x$(14): GO TO 110
2410 IF p=30 THEN  PRINT "If you don't have a key,I'd give up": GO TO 110
2420 IF p=13 THEN  PRINT "If I had a rope, I could climb  out!": GO TO 110
2430 PRINT "I'm as  confused as you are. I  suppose you could try prayer": GO TO
 110
2440 GO TO 110
2450 FOR x=1 TO 34: READ x$(x): NEXT x
2460 DATA "Do you know the density of      Platinum?","The bookcase slides aside
 to    reveal a secret passage"
2480 DATA "I drop the pen in amazement","I fell in the dark. I am dead!"
2500 DATA "I light the candle","The monster has halitosis and I can't get near f
or the smell"
2520 DATA "I don't have it!","No way! I'm a coward!","The monster seems to like
that! It grabs them and runs away!"
```

RUNS ON SPECTRUM

```
2550 DATA "Path west is dangerous!","I can't make it out","That seems to do the
trick"
2580 DATA "That annoys him! He attacks me! I AM DEAD","You are trying to confuse
 me!","The drawbridge comes down"
2600 DATA "The drawbridge rises up","The drunk shouts out words whichI can only
assume are swearing!"
2630 DATA "He grabs it quickly and stagers away letting me pass","I sink into th
e bog. I am dead!"
2650 DATA "I think I could follow the path west!","It tells of a ghost who is
   frightened of men in uniforms"
2670 DATA "There doesn't seem to be        anything special","There's a DEAD bod
y in there","They look rotten, just right for throwing!"
2700 DATA "The poor old man. He is covered with rotten tomatoes. I've still got
plenty left!","The dog starts to eat it, but I don't think it likes them"
2720 DATA "The dog likes them. It carries  them away to eat","The wolf grabs som
e and vanishes into the distance"
2740 DATA "The wolf KILLS ME!","I load the statue onto the cart!","The way is bl
ocked from this side"
2760 DATA "The note is from my great       grandfather. It reads :-"
2770 DATA "As my sole living heir, I have  sent you to find 6 treasures andrescu
e the princess. You must   deposit these on the doorstep"
2780 DATA "Why are you so violent?"
2790 LET x$(38)="So sorry I can't carry any more!"
2795 RETURN
2800 LET l$="": FOR h=1 TO LEN (z$)
2810 IF z$(h)=" " THEN  LET l$=z$(h+1 TO LEN (z$)): LET h=h+60
2820 NEXT h
2830 LET r=0
2840 LET l=0: IF LEN (l$)<2 THEN  RETURN
2850 FOR h=1 TO 54: IF n$(h,1 TO LEN (l$))=l$ THEN  LET l=1: LET r=h
2860 NEXT h
2870 RETURN
2880 BORDER 2: INK 1: PAPER 7
2890 PRINT '''TAB 6;"The house on misty hill"
2895 INK 5: PRINT AT 8,15;"an ": INK 1: PRINT AT 10,12;"adventure"
2896 INK 3: PRINT AT 12,14;"game"
2900 PAPER 8: CIRCLE 50,50,50
2910 CIRCLE 205,50,50
2920 PRINT AT 16,2;"By 1984": PRINT AT 16,21;"S.W. Lucas"
2930 RETURN
2970 LET a=0: IF b(6,1)=2 THEN  LET a=a+1
2980 IF b(13,1)=2 THEN  LET a=a+1
2990 IF b(14,1)=2 THEN  LET a=a+1
3000 IF b(20,1)=2 THEN  LET a=a+1
3010 IF b(23,1)=2 THEN  LET a=a+1
3020 IF b(35,1)=2 THEN  LET a=a+1
3030 IF b(38,1)=2 THEN  LET a=a+1
3040 RETURN
3050 BEEP 1,1
3060 IF p=18 THEN  PRINT "something happened": LET s(18,1)=19: LET s(18,2)=16: L
ET q$(18)="inside the shrine": GO TO 110
3065 PRINT "nothing happened!": GO TO 110
3070 GO SUB 2800
3080 IF l$="lamp" THEN  PRINT "rubbing an electric lamp is a   stupid thing to d
o!": GO TO 110
3085 PRINT "That doesn't make much sense!": GO TO 110
3100 PRINT "Do you want to play again ?";: INPUT r$
3105 IF r$(1)="y" THEN  RUN
3106 STOP
3110 GO SUB 2800: IF p=23 AND r=22 THEN  PRINT x$(10): GO TO 110
3120 IF l$="note" THEN  PRINT x$(32): PRINT x$(33): GO TO 110
3130 IF p=23 AND r=23 AND dc=1 THEN  PRINT x$(20): LET y=1: GO TO 110
3135 IF p=23 AND r=23 THEN  PRINT "how can I read the map when I   don't have it
 ?": GO TO 110
3140 IF p<>23 AND r=23 THEN  PRINT "not here!": GO TO 110
3150 IF p=32 THEN  PRINT x$(11): GO TO 110
3160 IF r=24 AND (p=46 OR p=25) THEN  PRINT x$(21): GO TO 110
3170 IF r=24 THEN  PRINT "not at the moment": GO TO 110
3180 PRINT "I can't see anyting to read": GO TO 110
3190 GO SUB 2800: IF p=26 AND r=25 AND c=0 THEN  PRINT x$(15): LET s(26,2)=27: L
ET c=1: GO TO 110
3200 IF p=26 AND r=25 AND c=1 THEN  PRINT x$(16): LET s(26,2)=0: LET c=0: GO TO
110
3210 PRINT x$(14): GO TO 110
3220 GO SUB 2800: IF p=4 AND (r=44 OR r=45) THEN  PRINT x$(25): GO TO 110
3230 GO TO 110
3240 GO SUB 2800: IF r=41 AND p=44 THEN  PRINT "it doesn't fit!": GO TO 110
3250 GO TO 110
3260 GO SUB 2800: IF l$="lamp" THEN  PRINT "it won't work"
3270 IF z<>1 OR bz<>1 THEN  GO TO 3284
3280 PRINT x$(5): LET kk=1: LET kl=1: LET g$(2)="a lit candle"
3281 FOR d=1 TO 3: IF v$(d)="a candle" THEN  LET v$(d)="a lit candle"
3282  NEXT d
3284 IF (z=1 AND bz<>1) THEN  PRINT "what with?": GO TO 110
3285 IF z<>1 THEN  PRINT "you don't have one": GO TO 110
3287 RETURN
3290 IF p<>13 THEN  PRINT "not here": GO TO 110
3300 IF jm<>1 THEN  PRINT "I need a rope!": GO TO 110
3310 PRINT "I throw the rope up and climb   out": LET p=14: GO TO 110
```

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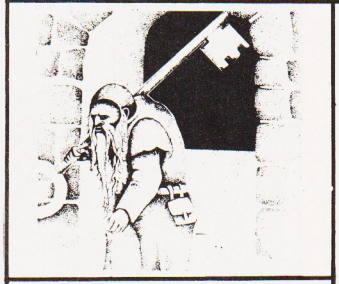

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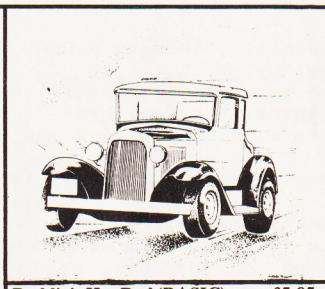

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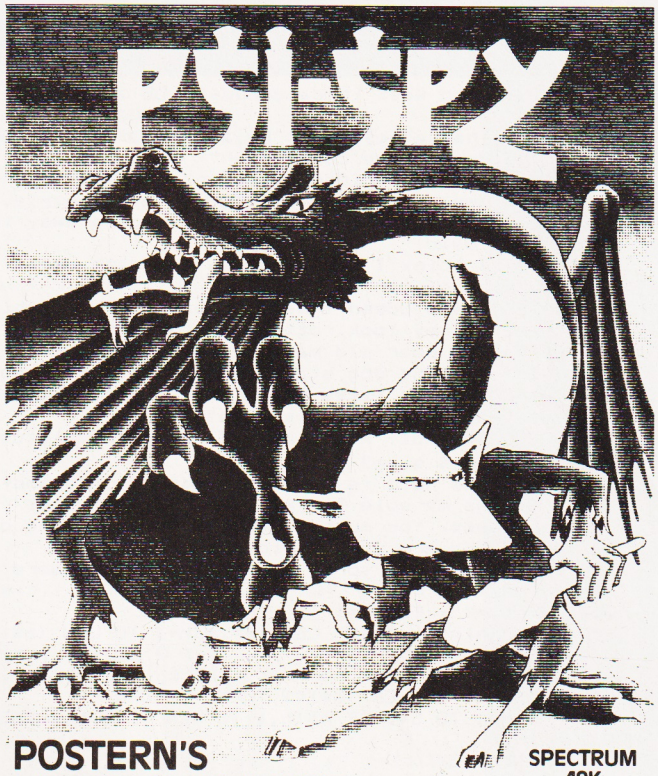

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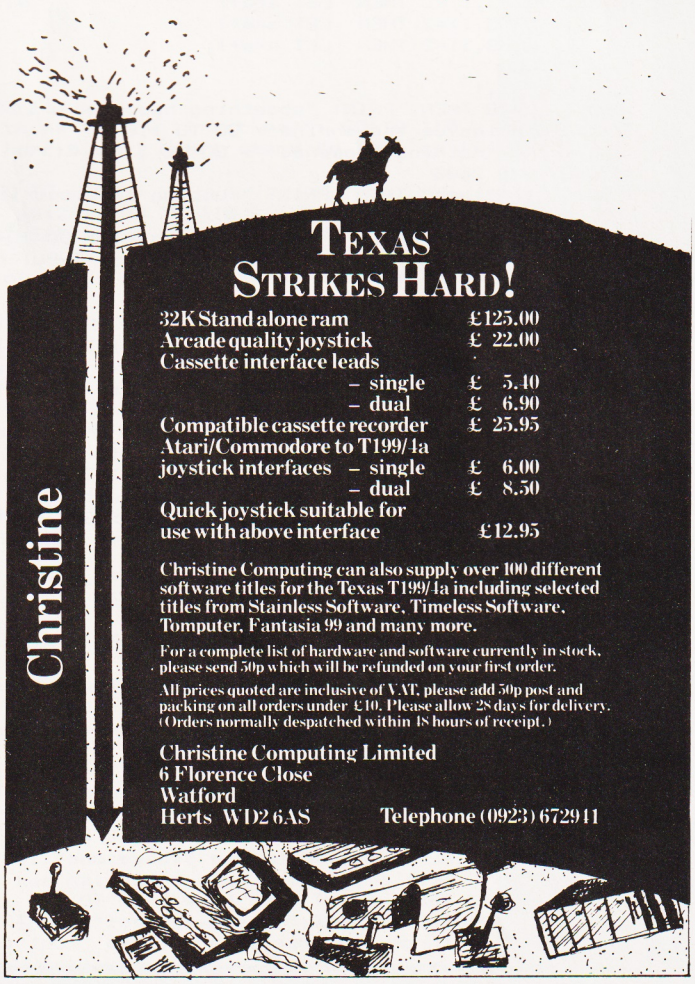

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This short program will fit into a 16K ZX Spectrum. The object of the game is to steer your car down the course. When you select the level, 1 is best for the first few goes.

Controls are '5' for left and '8' for right.

RUNdown

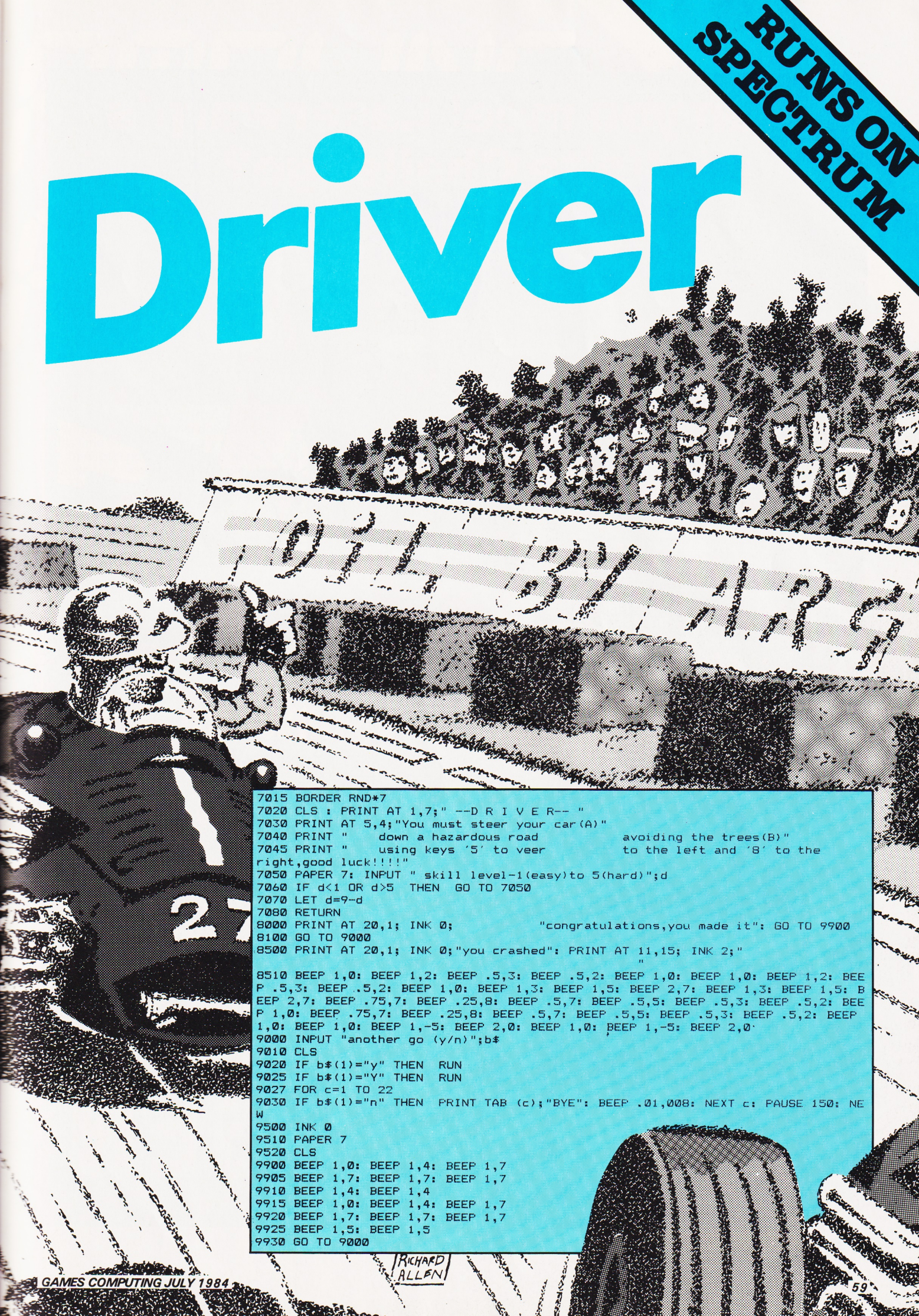
Line	Action
1-20	Initialisation.
30-180	Do graphics.
1000-1200	Track.
1220-1320	Cars.
5100-5330	Controls.
7010-7080	Instructions.
8000-9930	End of run.

```
  1 FOR s=10 TO 13
  5 PAPER 0: CLS : FOR a=1 TO 22: PRINT TAB (a); INK 4;"DRIVER": BEEP
.02,0008: NEXT a: PAUSE 50: CLS
  6 FOR z=1 TO 22: PRINT TAB (z); INK 3;"BY": BEEP .1,0008: NEXT z:
PAUSE 50: CLS
  7 FOR x=1 TO 22: PRINT TAB (x); INK 6;"S. GOODLEY": BEEP .01,0008:
NEXT x: PAUSE 50: CLS
```

```
  20 GO SUB 7000
  30 POKE USR "a",153
  40 POKE USR "a"+1,255
  50 POKE USR "a"+2,189
  60 POKE USR "a"+3,60
  70 POKE USR "a"+4,36
  80 POKE USR "a"+5,153
  90 POKE USR "a"+6,255
 100 POKE USR "a"+7,153
 110 POKE USR "B",24
 120 POKE USR "B"+1,60
 130 POKE USR "B"+2,90
 140 POKE USR "B"+3,60
 150 POKE USR "B"+4,90
 160 POKE USR "B"+5,60
 170 POKE USR "B"+6,90
 180 POKE USR "B"+7,24
 800 LET xy=1
1000 REM print track
1010 PAPER 7: INK 7
1020 CLS
1050 LET  x=(RND*10)+5
1060 LET xb=x+2
1100 FOR y=1  TO 20
1140 PRINT AT y,x; INK 0;"B";AT y,x+d;"B"
1150 LET x=x+(SGN (RND-.5))
1160 IF x>31 THEN  LET x=31
1170 IF x<0 THEN  LET x=0
1200 NEXT y
1220 PRINT AT  xy,xb; INK 1; "A"
1230 PAUSE 50
1240 PRINT AT  y,x+3; INK 0; "A"
1250 FOR z=1 TO 20
1260 LET x=x+(SGN (RND-.5))
1270 IF x>31 THEN  LET x=31
1280 IF x<0 THEN  LET x=0
1310 POKE 23692,0
1320 PRINT AT 21,x; INK 0;"B";AT 21,x+d;"B";
2000 GO SUB 5000
2400 NEXT z
3000 FOR z=1 TO 20
3100 PRINT AT 21,1''
3150 GO SUB 5000
3200 NEXT z
3500 GO SUB 8000
5100 LET a$=INKEY$
5150 PRINT AT xy-1,xb;" "
5200 IF a$="5" THEN  LET xb=xb-1
5210 IF a$="8" THEN  LET xb=xb+1
5320 IF ATTR (xy,xb)=56 THEN  GO TO 8500
5330 PRINT AT xy,xb; INK 1;"A"
5500 RETURN
7000 INK RND*6
7010 PAPER 7
```

Driver

RUNS ON SPECTRUM



```
7015 BORDER RND*7
7020 CLS : PRINT AT 1,7;" --D R I V E R-- "
7030 PRINT AT 5,4;"You must steer your car(A)"
7040 PRINT "    down a hazardous road          avoiding the trees(B)"
7045 PRINT "    using keys '5' to veer         to the left and '8' to the
right,good luck!!!!"
7050 PAPER 7: INPUT " skill level-1(easy)to 5(hard)";d
7060 IF d<1 OR d>5  THEN  GO TO 7050
7070 LET d=9-d
7080 RETURN
8000 PRINT AT 20,1; INK 0;            "congratulations,you made it": GO TO 9900
8100 GO TO 9000
8500 PRINT AT 20,1; INK 0;"you crashed": PRINT AT 11,15; INK 2;"
                                                                "
8510 BEEP 1,0: BEEP 1,2: BEEP .5,3: BEEP .5,2: BEEP 1,0: BEEP 1,0: BEEP 1,2: BEE
P .5,3: BEEP .5,2: BEEP 1,0: BEEP 1,3: BEEP 1,5: BEEP 2,7: BEEP 1,3: BEEP 1,5: B
EEP 2,7: BEEP .75,7: BEEP .25,8: BEEP .5,7: BEEP .5,5: BEEP .5,3: BEEP .5,2: BEE
P 1,0: BEEP .75,7: BEEP .25,8: BEEP .5,7: BEEP .5,5: BEEP .5,3: BEEP .5,2: BEEP
1,0: BEEP 1,0: BEEP 1,-5: BEEP 2,0: BEEP 1,0: BEEP 1,-5: BEEP 2,0
9000 INPUT "another go (y/n)";b$
9010 CLS
9020 IF b$(1)="y" THEN  RUN
9025 IF b$(1)="Y" THEN  RUN
9027 FOR c=1 TO 22
9030 IF b$(1)="n" THEN  PRINT TAB (c);"BYE": BEEP .01,008: NEXT c: PAUSE 150: NE
W
9500 INK 0
9510 PAPER 7
9520 CLS
9900 BEEP 1,0: BEEP 1,4: BEEP 1,7
9905 BEEP 1,7: BEEP 1,7: BEEP 1,7
9910 BEEP 1,4: BEEP 1,4
9915 BEEP 1,0: BEEP 1,4: BEEP 1,7
9920 BEEP 1,7: BEEP 1,7: BEEP 1,7
9925 BEEP 1,5: BEEP 1,5
9930 GO TO 9000
```

RICHARD ALLEN

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AMBLING ANDROID

RUNS ON BBC/B ELECTRON

If you enjoyed playing 'Roving Robot' last month, we have another dose of the same. This time the faithful robot is now in charge of transporting eggs around a maze. Of course the aliens are back to prevent him.

This program uses machine code and makes full use of the BBC, it will run on the Electron with no further changes.

The program features a sound on/off function, increasing numbers of aliens with every screen completed, constant sound effects, and three lives with a bonus line after completing screen 5. The game is mainly in BASIC, with a machine code routine to move aliens, which are multi-coloured. The object of the game is to transport the eggs at the top of the screen to the bottom of the screen in the fastest and safest manner. If you make contact with the aliens, you die.

The program was written for maximum speed, and not for elegance or structure, because apart from writing the program totally in complex machine code, the only way to achieve anything like arcade speed is to write in this manner; that is the use of multistatement lines, GOSUB variables, line numbers with increments of one, and almost total use of integer variables. The game that results is fast, and difficult.

RUNdown

Line	Action
0	Jump to control loop.
1-4	Act upon a keypress, to change direction; line no. held in key% ( )
5	Pause until another key pressed; line no. held in key ( )

6	If a character unrecognised, or keypress not acted on; just return
7-10	Act upon character detected on the screen; held in screen% ( )
14-25	Control loop for the program.
29	FNscrn (x value, y value) — used to detect a character on the screen.
33	PROCw (time%) — wait for a pre-specified amount of time.
37	PROCscore — print the screen score in the form "00850".
41	PROClives — print a string of robots to represent the amount of lives.
45	PROClevel — print the level in the form "04".
49,50	PROCcls — clear the screen in a burst of sound and colour.
54-58	PROCman — check the keyboard, screen and act upon the values.
62-64	PROCgame — play the screen until you die, or complete it.
68-80	PROCdead — you have hit an alien, or run out of time; decrement lives etc.
84-88	PROCtimeup — you have run out of time; reset bonus, and call dead procedure.
92-97	PROCnewscreen — you have completed the current screen; move onto next.
101-121	PROCdrawscreen — draw the maze, set the variables, and get ready to play.
130-139	PROCalldead — print inquest, check for hiscore.
143-150	PROCalldead — now print the high scores and their scorers, check restart.
154	PROCswap exchange the hiscore and hiscorer variables until in right order.
158,159	PROCinputname — input your name if you are in the top ten scorers.
163-179	PROCinstruct — print out instructions, ask if you need sound..
183-205	PROCinit — initialise variables, define graphics, dimension arrays etc.
209-215	PROCplace aliens — print and POKE in positions of aliens for m/c.
219-291	PROCassemble — assemble machine code for moving the aliens.
295-302	Error routine — report it and end the program in MODE 6.

Variables Used

X%,Y%	Horizontal and vertical positions of the android.
D%	Direction of android, used to select different shapes of android.
man (3,3)	Holds the various shapes of robots, in the 4 different colours.
screen% (159)	Holds the destinations GOSUBed when a non-space is met on the screen.
key%(140)	Holds the destinations GOSUBed when a direction or pause key is pressed.
hi%(10)	Current top ten scores.
hi$(10)	Current top ten scorer's names.
got%	Variable holding if you have an egg (=3), or not (=2); colour printed of-man.
carry%	Variable holding how many eggs you have transported.
dx%,dy%	Variables holding the values added or subtracted to X%+Y% when you move.
bl$	String containing two spaces to erase the android.
score%	Your current score.
lives%	The number of lives you have.
bonus %	The number of bonus you have.
inc%	Increment subtracted from bonus each repetition of game loop.
level%	The current level you are on.
loop%	Variable used in all FOR . . . NEXT loops, except delay loop in PROCw.
ul$	Underlining string of 20"_" 's.
scr1 %, scr2 %	Variables holding screen characters next to alien, in the direction moved.

Machine Code

xp%	Located from &70-&7F, containing horizontal positions of aliens.
yp%	Located from &80-&8F, containing vertical positions of aliens.
di%	Located from %90-&9F, containing the direction number of aliens.
sc1 %,sc2 %	Locations &A0+&A1, containing screen sensed characters under aliens.
rnd%	Located at &A2, containing a random number from BASIC, between 1 and 4.
number%	Located at &A3, containing the number of aliens for the present screen.
nhit%	Located at &A4, containing whether your man is hit (=1) or not (=0).
cx%	Located at &A5, containing the X register when sensing the screen.
direc%	Contains the direction u.d.g. needed for the direction of the alien.
OS%	&FREE; the Operating system subroutine called to print characters.
code__space	reserves space for the machine code.

```
    0 GOTO14:REM all REMs can be ignored
    1 D%=0:dx%=-1:dy%=0:RETURN
    2 D%=1:dx%=1:dy%=0:RETURN
    3 D%=2:dx%=0:dy%=1:RETURN
    4 D%=3:dx%=0:dy%=-1:RETURN
    5 KEY=GET:SOUND1,-15,50,3:PROCw(700):RETURN
    6 RETURN
    7 dx%=0:dy%=0:scr1%=32:scr2%=32:RETURN
    8 PRINTTAB(X%,Y%)bl$;:PROCdead:RETURN
    9 dx%=0:dy%=0:IFgot%=2RETURN ELSEVDU17,3,31,X%,Y%+2
,243:got%=2:carry%=carry%+1:FORloop%=200TO10STEP-15:SOU
ND1,2,loop%,1:NEXT:score%=score%+95:PROCscore:IFcarry%=
6end%=-1:RETURN ELSERETURN
   10 IFgot%=3ORY%=27dx%=0:dy%=0:RETURN ELSEFORloop%=0T
O100STEP10:SOUND1,3,loop%,1:NEXT:score%=score%+150:PROC
score:got%=3:RETURN
   11 REM
   12 REM     MAIN GAME LOOP
   13 REM
   14 MODE5
   15 ON ERROR GOTO 295
   16 PROCinit
   17 PROCassemble
   18 REPEAT:score%=0:lives%=3:level%=1
   19 PROCinstruct
   20 PROCdrawscreen
   21 PROCgame
   22 IFlives%>0 PROCnewscreen:GOTO20
   23 PROCalldead
   24 UNTIL FALSE
   25 END
   26 REM
```

```
   27 REM     SCREEN SENSE FUNCTION
   28 REM
   29 DEFFNscrn(q%,w%):VDU31,q%,w%:=(USR(&FFF4)AND&FF00
)DIV&100
   30 REM
   31 REM     PAUSE A WHILE PROCEDURE
   32 REM
   33 DEF PROCw(time%):FORdelay%=1TOtime%:NEXT:ENDPROC
   34 REM
   35 REM     PRINT TNE SCORE PROCEDURE
   36 REM
   37 DEF PROCscore:VDU17,2,31,0,1:PRINTLEFT$("00000",5
-LENSTR$score%)score%:ENDPROC
   38 REM
   39 REM     PRINT THE LIVES PROCEDURE
   40 REM
   41 DEF PROClives:FORloop%=1TOlives%:PRINTTAB(6+loop%
,0)man$(3,3):NEXT:PRINTTAB(6+lives%,0)bl$;:ENDPROC
   42 REM
   43 REM     PRINT THE LEVEL PROCEDURE
   44 REM
   45 DEF PROClevel:VDU17,2,31,11,1:PRINTLEFT$("00",2-L
ENSTR$level%)level%:ENDPROC
   46 REM
   47 REM     CLEAR THE SCREEN PROCEDURE
   48 REM
   49 DEF PROCcls:FORloop%=0TO9:VDU17,129+loop%,28,loop
%,31-(loop%*1.75),19-loop%,loop%*1.75:CLS:SOUND1,1,loop
%*25,2:PROCw(100):NEXT:VDU19,0,4;0;:PROCw(550):VDU19,0,
0;0;
   50 FORloop%=9TO0STEP-1:VDU17,129+loop%,28,loop%,31-(
loop%*1.75),19-loop%,loop%*1.75:CLS:SOUND1,1,loop%*25,2
```

AMBLING ANDROID

RUNS ON BBC/B ELECTRON

```
:PROCw(70):NEXT:VDU26:COLOUR128:CLS:ENDPROC
   51 REM
   52 REM     MOVE THE ANDROID PROCEDURE
   53 REM
   54 DEF PROCman:in%=INKEY0:IFin%>0SOUND&0011,3,30,2:G
OSUBkey%(in%)
   55 scr1%=FNscrn(X%+dx%,Y%+dy%):scr2%=FNscrn(X%+dx%,Y
%+1+dy%):IFscr1%<>32GOSUBscreen%(scr1%):IFend%ENDPROC
   56 IFscr2%<>32GOSUBscreen%(scr2%):IFend%ENDPROC
   57 PRINTTAB(X%,Y%)bl$TAB(X%+dx%,Y%+dy%)man$(D%,got%)
:X%=X%+dx%:Y%=Y%+dy%:IFdx%ORdy%SOUND&0011,2,232,2
   58 PROCw(sk%):ENDPROC
   59 REM
   60 REM     PLAY THE SCREEN PROCEDURE
   61 REM
   62 DEF PROCgame:end%=0:REPEAT:PROCman:?rnd%=RND(4):?
(di%+RND(15))=RND(4):CALLCODE:IF?mhit% ?mhit%=0:PROCdea
d:IFend%THEN64
   63 PROCman:bonus%=bonus%-inc%:IFbonus%<1PROCtimeup E
LSEVDU17,2,31,15,1:PRINTLEFT$("00000",5-LENSTR$bonus%)b
onus%;
   64 UNTILend%:ENDPROC
   65 REM
   66 REM     YOU ARE DEAD PROCEDURE
   67 REM
   68 DEF PROCdead
   69 FORloop%=1TO10:FORloop2%=3TO1STEP-1:PRINTTAB(X%,Y
%)man$(3,loop2%);:SOUND1,1,loop%*8*loop2%,1:NEXT,
   70 COLOUR3:VDU31,X%,Y%,242,10,8,241:PROCw(1000):FOR1
oop%=100TO0STEP-4:SOUND1,-15,loop%,1:NEXT
   71 lives%=lives%-1:IFlives%<1end%=TRUE:ENDPROC
   72 PROClives
   73 FORloop%=1TO?number%:PRINTTAB(loop%?xp%,loop%?yp%
)bl$;:NEXT:PRINTTAB(X%,Y%)man$(D%,got%)
   74 PROCplace_aliens
   75 *FX15,0
   76 IFscr1%=0ORscr1%=153scr1%=32
   77 IFscr2%=0ORscr2%=153scr2%=32
   78 KEY=GET:IFkey%(KEY)=6THEN78 ELSEGOSUBkey%(KEY)
   79 IFFNscrn(X%+dx%,Y%+dy%)<>32ORFNscrn(X%+dx%,Y%+1+d
y%)<>32dx%=0:dy%=0
   80 ENDPROC
   81 REM
   82 REM     TIME RUN OUT PROCEDURE
   83 REM
   84 DEF PROCtimeup:FORloop%=1TO6
   85 PRINTTAB(15,1)"     ":SOUND1,-15,loop%*10,2:PROCw
(700):PRINTTAB(15,1)"00000":SOUND1,-15,100-loop%*10,2:P
ROCw(800):NEXT
   86 SOUND&0011,-15,0,5
   87 PROCdead
   88 bonus%=2000:inc%=5:ENDPROC
   89 REM
   90 REM     COMPLETED SCREEN PROCEDURE
   91 REM
   92 DEF PROCnewscreen:FORloop%=1TO110STEP3:SOUND1,3,1
oop%,1:NEXT
   93 REPEAT:score%=score%+20:bonus%=bonus%-20:PROCscor
e:PRINTTAB(15,1)LEFT$("00000",5-LENSTR$bonus%)bonus%:SO
UND&0011,1,40,1:UNTILbonus%<=0:PRINTTAB(15,1)"00000"
   94 level%=level%+1:PROClevel:IFlevel%=6lives%=lives%
+1:PROClives:FORloop%=1TO5:FORloop2%=1TO5:SOUND1,3,loop
%*10*loop2%,1:NEXT,
   95 PROCw(1500)
   96 PROCcls
   97 ENDPROC
   98 REM
   99 REM     DRAW THE SCREEN PROCEDURE
  100 REM
  101 DEF PROCdrawscreen:RESTORE125
  102 VDU17,3,17,129,31,0,0:PRINT" 1UP "TAB(11,0)CHR$24
0CHR$239TAB(15,0)"BONUS"
  103 VDU17,128:PROCscore:PROClives:PROClevel:bonus%=45
00+(500*level%):IFbonus%>10000bonus%=9990
  104 inc%=5+(5*level%):IFinc%>100inc%=100
  105 ?number%=4+level%:IF?number%>10?number%=10
  106 PRINTTAB(15,1)LEFT$("00000",5-LENSTR$bonus%)bonus
%;:
  107 COLOUR1:REPEAT:READx%,y%,num%
  108 PRINTTAB(x%,y%+1)STRING$(num%,CHR$244);
  109 UNTILy%=29:FORloop%=5TO28:VDU31,0,loop%,244,31,19
loop%,244:NEXT
  110 COLOUR3:FORloop%=4TO29STEP25
  111 FORloop2%=2TO17STEP3
  112 PRINTTAB(loop2%,loop%);:IFloop%=4PRINTCHR$243 EL
EPRINT"_"
  113 NEXT,
  114 X%=9:Y%=16:D%=2:dx%=1:dy%=0:got%=2:PRINTTAB(X%,Y%
)man$(D%,got%);:
  115 PROCplace_aliens
  116 *FX15,0
  117 FORloop%=0TO255STEP25:SOUND1,-15,loop%,1:NEXT
  118 carry%=0
  119 in%=GET:IFkey%(in%)=6THEN119 ELSEGOSUBkey%(in%)
  120 sk%=(9-level%)*3:IFsk%<0sk%=0
  121 ENDPROC
  122 REM
  123 REM     DATA FOR MAZE BLOCKS
  124 REM
  125 DATA0,2,20,0,3,20,3,6,4,8,6,4,13,6,4,3,7,1,9,7,2,
16,7,1,3,8,1,9,8,2,16,8,1,3,9,1,5,9,3,9,9,2,12,9,3,16,9
,1,7,10,1,12,10,1,7,11,1,12,11,1,2,12,4,9,12,2,14,12,4,
2,13,4,9,13,2,14,13,4,5,14,1,7,14,6,14,14,1,5,15,1,14,1
5,1,5,16,1,14,16,1
  126 DATA2,16,1,17,16,1,2,17,1,7,17,6,17,17,1,2,18,1,9
,18,2,17,18,1,2,19,3,9,19,2,15,19,3,7,20,1,12,20,1,7,21
,1,12,21,1,5,22,3,12,22,3,3,23,1,3,24,1,16,23,1,16,24,1
,3,25,4,8,25,4,13,25,4,0,28,20,0,29,20
  127 REM
  128 REM     END OF THE GAME PROCEDURE
  129 REM
  130 DEF PROCalldead
  131 VDU17,2,31,5,17:PRINT"GAME  OVER":VDU17,3,31,X%,Y
%,242,10,8,241:SOUND0,-15,100,5:PROCw(3300)
  132 *FX21,0
  133 SOUND1,3,10,4:GCOL3,129:CLG:SOUND1,3,30,4:GCOL0,1
29:CLG:SOUND1,3,90,4:GCOL0,128:CLG
  134 VDU17,1,31,0,10:PRINTul$:VDU31,0,16:PRINTul$;:VDU
31,0,20:PRINTul$:VDU17,2:PRINTTAB(0,12);"You scored ";:
VDU17,3:PRINTscore%
  135 VDU17,2,31,0,14:PRINT"  on level ";:VDU17,3:PRINT
level%
  136 IFscore%>hi%(10)hi$(10)="":hi%(10)=score%:PRINTTA
B(0,18);"You are on the high  score table!!":FORloop%=
1TO200STEP4:SOUND1,1,loop%,1:NEXT
  137 A=INKEY(300):GCOL3,129:CLG:PROCw(200):GCOL0,129:C
LG:GCOL0,128:CLG
  138 FORloop%=9TO1STEP-1:IFhi%(loop%)<hi%(loop%+1)PROC
swap
  139 NEXT
  140 REM
  141 REM     PRINT THE HISCORE TABLE
  142 REM
  143 CLS:VDU17,1,31,0,0:PRINTul$:VDU17,2:PRINTTAB(0,2)
"TODAY'S HIGH SCORES":VDU17,1,31,0,3:PRINTul$:VDU17,3
  144 hi%=0:FORloop%=1TO10:row%=5+loop%*2
  145 VDU17,3,31,0,row%:PRINTLEFT$("00000",5-LENSTR$hi%
(loop%))hi%(loop%);:VDU17,1:PRINT"-";:VDU17,2:PRINThi$(
loop%);:IFhi$(loop%)=""hi%=loop%:ROW%=row%
  146 NEXT:IFhi%PROCinputname
  147 VDU17,1,31,0,27:PRINTul$:PRINTTAB(0,30)ul$;:VDU17
,3:PRINTTAB(0,29)"Press a key to start";:*FX15,0
  148 KEY=GET
  149 CLS
  150 ENDPROC
  151 REM
  152 REM     PLACE HISCORES IN ORDER
  153 REM
  154 DEF PROCswap:hi%=hi%(loop%):hi%(loop%)=hi%(loop%+
1):hi%(loop%+1)=hi%:hi$=hi$(loop%):hi$(loop%)=hi$(loop%
+1):hi$(loop%+1)=hi$:ENDPROC
  155 REM
  156 REM     INPUT YOUR NAME PROCEDURE
  157 REM
  158 DEF PROCinputname:SOUND1,3,50,2:VDU23,1,1,0;0;0;0
;0;0,17,1:INPUTTAB(6,ROW%)hi$(hi%);:VDU23,1,0,0;0;0;0;
0,17,3
  159 PRINTTAB(6,ROW%)LEFT$(hi$(hi%),14);STRING$(19," "
```

```
);:hi$(hi%)=LEFT$(hi$(hi%),14):SOUND1,3,90,2:ENDPROC
  160 REM
  161 REM    PRINT THE INSTRUCTIONS
  162 REM
  163 DEF PROCinstruct
  164 VDU22,4,23,1,0,0;0;0;0;0;0;19,0,4;0;:CLS
  165 VDU17,0,17,129,31,0,2:PRINT"  Transport Android (
Roving Robot II).  ":VDU17,1,17,128,31,0,4
  166 PRINT"You control Transport Android,who is    fac
ed with a maze,containing the six    eggs that must be
transported from the  top of the screen to the bottom,s
o he   can escape.But the Mazedroids are out to";
  167 PRINT"stop him as they roam about the screen  in
ever increasing numbers."
  168 PRINT"You must move the eggs within the bonus lim
it shown at the top of the screen.Youhave three lives,a
nd a bonus life after passing screen five.When you have
 an eggyou go yellow,otherwise you are cyan."
  169 PRINT':VDU17,0,17,129:PRINT"To control the Androi
d,use these keys:- ":VDU17,1,17,128
  170 PRINT'" 'Z'  - left          'X'  - right
?'  - down          '*'  -  up                  'space'
- pause"
  171 PRINT'"Do you want sound (Y)es or (N)o ? ";
  172 REPEAT:sound$=GET$:in%=INSTR("YyNn",sound$):UNTIL
in%
  173 IFin%<3PRINT"Yes":*FX210,0
  174 IFin%>2PRINT"No":*FX210,1
  175 VDU17,0,17,129,31,0,28:PRINT"      Press any key t
o start the game.    ":VDU17,1,17,128
  176 *FX15,0
  177 KEY=GET
  178 VDU22,5,23,1,0,0;0;0;0;0;0;19,2,6;0;19,3,3;0;
  179 ENDPROC
  180 REM
  181 REM    INITIALISING PROCEDURE
  182 REM
  183 DEF PROCinit:RESTORE193:VDU23,1,0,0;0;0;0;0;0;19,
2,6;0;19,3,3;0;
  184 DIMscreen%(159),key%(140),man$(3,3),hi$(10),hi%(1
0),code_space 400
  185 *FX4,1
  186 *FX11,0
  187 VDU23,255,126,255,240,245,245,240,127,63,23,254,1
43,207,255,255,126,61,195,230,23,253,126,255,15,175,175
,15,254,252,23,252,241,243,255,255,126,188,195,103,23,2
51,126,255,129,165,165,129,255,255,23,250,255,253,250,1
24,60,153,195,102
  188 VDU23,249,0,129,66,36,24,60,126,255,23,248,255,39
,39,39,255,255,255,255,23,247,255,228,228,228,255,255,2
55,255,23,246,255,255,255,153,153,153,255,255,23,245,15
3,153,153,255,255,255,255,255
  189 VDU23,244,170,85,170,85,170,85,170,85,23,243,56,1
16,250,250,254,254,124,56,23,242,56,124,84,84,124,40,40
,146,23,241,198,108,56,16,56,108,198,0,23,240,77,73,73,
77,73,104,108,0,23,239,90,82,82,90,210,147,155,0
  190 FORloop%=0TO140:key%(loop%)=6:NEXT
  191 FORloop%=0TO159:screen%(loop%)=6:NEXT
  192 FORloop%=1TO7:READchar%,dest%:key%(char%)=dest%:N
EXT
  193 DATA90,1,122,1,88,2,120,2,47,3,58,4,32,5
  194 screen%(148)=7:screen%(153)=8:screen%(0)=8:screen
%(95)=9:screen%(147)=10
  195 FORloop%=0TO3:READchar%,dest%:FORloop2%=0TO3:man$
(loop%,loop2%)=CHR$17+CHR$loop2%+CHR$char%+CHR$10+CHR$8
+CHR$dest%:NEXT,
  196 DATA253,252,255,254,251,250,251,250
  197 FORloop%=1TO10:hi$(loop%)="Electron":hi%(loop%)=(
11-loop%)*150:NEXT
  198 bl$=" "+CHR$10+CHR$8+" "
  199 ul$=STRING$(20,"_")
  200 xp%=&70:yp%=&80:di%=&90:sc1%=&A0:sc2%=&A1:rnd%=&A
2:number%=&A3:mhit%=&A4:xc%=&A5:direc%=&A6:OS%=&FFEE
  201 ENVELOPE1,129,-15,-7,-4,11,10,10,126,0,0,-126,126
,126
  202 ENVELOPE2,1,15,15,165,2,3,1,126,0,0,-126,126,126
  203 ENVELOPE3,2,50,60,50,2,3,4,126,0,0,-126,126,126
  204 A%=135:@%=0
  205 ENDPROC
  206 REM
  207 REM    PLACE THE ALIENS PROCEDURE
  208 REM
  209 DEF PROCplace_aliens:VDU17,1
  210 FORloop%=1TO?number%
  211 x%=RND(18):y%=RND(23)+3:IFFNscrn(x%,y%)<>32ORFNsc
rn(x%,y%+1)<>32THEN211
  212 loop%?xp%=x%:loop%?yp%=y%:loop%?di%=RND(4)
  213 VDU31,x%,y%,249,10,8,17,131,loop%?di%+244,17,128
  214 NEXT:?rnd%=RND(4):?mhit%=0:VDU17,3
  215 ENDPROC
  216 REM
  217 REM    ASSEMBLE M/C PROCEDURE
  218 REM
  219 DEF PROCassemble
  220 FOR loop%=0 TO 2 STEP 2
  221 P%=code_space
  222 [ OPT loop%
  223 .CODE LDA#17:JSROS%:LDA#1:JSROS%:LDXnumber%
  224 .cont JMPblank
```

AMBLING ANDROID

```
  225 .a     LDAdi%,X:CMP#1:BEQleft
  226        CMP#2:BEQright
  227        CMP#3:BEQdown
  228        CMP#4:BEQup
  229 .b     JMPprint
  230 .c     DEX:TXA:CMP#0:BEQover
  231        JMPcont
  232 .left  JMPL
  233 .right JMPR
  234 .down  JMPD
  235 .up    JMPU
  236 .over  JMPfinish
  237 .L     LDA#31:JSROS%:LDAxp%,X:SEC
  238        SBC#1:JSROS%:LDAyp%,X
  239        JSROS%:STXxc%:LDA#135
  240        JSR&FFF4:STXsc1%:LDA#10
  241        JSROS%:LDA#135:JSR&FFF4
  242        STXsc2%:LDXxc%
  243        LDAsc1%:CMP#32:BNEhit
  244        LDAsc2%:CMP#32:BNEhit
  245        DECxp%,X:LDA#248:STAdirec%
  246        JMPb
  247 .R     LDA#31:JSROS%:LDAxp%,X:CLC
  248        ADC#1:JSROS%:LDAyp%,X
  249        JSROS%:STXxc%:LDA#135
  250        JSR&FFF4:STXsc1%:LDA#10
  251        JSROS%:LDA#135:JSR&FFF4
  252        STXsc2%:LDXxc%
  253        LDAsc1%:CMP#32:BNEhit
  254        LDAsc2%:CMP#32:BNEhit
  255        INCxp%,X:LDA#247:STAdirec%
  256        JMPb
  257 .hit   CMP#154:BCShitm:LDArnd%
  258        STAdi%,X:JMPb
  259 .hitm  LDA#1:STAmhit%:JMPb
  260 .D     LDA#31:JSROS%:LDAxp%,X
  261        JSROS%:LDAyp%,X:CLC:ADC#2
  262        JSROS%:STXxc%:LDA#135
  263        JSR&FFF4:STXsc1%:LDXxc%
  264        LDAsc1%:CMP#32:BNEhit
  265        INCyp%,X:LDA#246:STAdirec%
  266        JMPb
  267 .U     LDA#31:JSROS%:LDAxp%,X
  268        JSROS%:LDAyp%,X:SEC:SBC#1
  269        JSROS%:STXxc%:LDA#135
  270        JSR&FFF4:STXsc1%:LDXxc%
  271        LDAsc1%:CMP#32:BNEhit
  272        DECyp%,X:LDA#245:STAdirec%
  273        JMPb
  274 .blank LDA#31:JSROS%:LDAxp%,X
  275        JSROS%:LDAyp%,X:JSROS%
  276        LDA#32:JSROS%:LDA#10:JSROS%
  277        LDA#8:JSROS%:LDA#32:JSROS%
  278        JMPa
  279 .print LDA#31:JSROS%:LDAxp%,X
  280        JSROS%:LDAyp%,X:JSROS%
  281        LDA#249:JSROS%:LDA#10
  282        JSROS%:LDA#8:JSROS%:LDA#17
  283        JSROS%:LDA#131:JSROS%
  284        LDAdirec%:JSROS%:LDA#17
  285        JSROS%:LDA#128:JSROS%
  286        JMPc
  287 .finish LDA#17:JSROS%:LDA#3:JSROS%
  288        RTS
  289        ]
  290 NEXT loop%
  291 ENDPROC
  292 REM
  293 REM    ERROR-REPORT IN MODE 6
  294 REM
  295 MODE6
  296 *FX15,0
  297 PRINTul$ul$:REPORT:PRINT" at line no. ";ERL
  298 SOUND1,2,ERR,5
  299 PRINTul$ul$'
  300 *FX4
  301 *FX12,0
  302 END
```

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ATMOS REVIEW

The new Oric Atmos is tested, taken apart and put back together again by Mike Roberts. Read on for his verdict...

Many years ago a company called Tangerine released a microcomputer in kit form called the Microtan 65. This was based on a 6502 processor and had quite a lot of options and add-ons available to it.

Tangerine then decided that they wanted to go further.This resulted in the formation of Oric Products International and the introduction about 18 months ago of the Oric-1, and the recent release (and demise) of the Tiger business computer. The Oric was received very warmly overseas but received a cool reception in the land of its birth. It only sold about 200,000 despite competing in the same market as the ZX Spectrum and having a newer more modern design, better graphics, and much better sound, making it a computer that was more advanced than the now aged ZX Spectrum.

One problem plaguing the Oric was that the ROM containing the BASIC had some bugs in it, that is it did not work as well as it was supposed to. Also the keyboard was nothing to shout about, although the keys were hard plastic and had a definite feel, even though it was streets ahead of the rubber mat that the ZX Spectrum had which was only a development of the ZX81.

In January, however, Oric launched a computer, and not an Oric-1 with an improved ROM as was expected, but a design so different from the Original machine that it had a new name and can be considered as a totally new machine.

New Look

The difference between the two machines is immediately apparent. The colour scheme of the Atmos is a tasteful red and black and it has a full size keyboard. This keyboard is one of the best types that I have ever used, only the Adam and the Commodore keyboards come anything near it. The BBC keyboard is awkward in comparison. The layout is the same as the Oric-1 but some keys have been made double sized for ease of use like the shift keys and the return key. It is very easy to touch type on this keyboard.

The case of the machine is identical to the Oric-1 and must have used the same mould. The interfaces are the same with the same connectors. A printer interface that can be used for joysticks and as a general input/output port, an RGB interface for high quality professional monitors and sound output, expansion bus that gives access to the full 64K of memory and disc drives, and a cassette socket that provides cassette motor control.

The BASIC is much better at handling Input/Output so now printed listings don't have funny characters appearing every now and then. *Games Computing* has had trouble in the past due to the Oric-1 not being able to drive a printer properly, some of our listings were corrupted, but now we use an Atmos to do all our listings and have no problems at all.

New Cassette Commands

The method of using the cassette has changed as well. You can now save data or arrays, very necessary for saving that most important adventure position at 4 am when you finally fall unconscious after 48 hours straight hacking. A verify and merge facility is also included.

The BASIC now has a PRINT AT statement which is similar to the PLOT command but the text pointer does not move. This is good for fast moving around of UDGs on the screen. Sound functions are the same although the speaker is a little quieter, this is because in the Oric-1 the speaker amplifier drew so much current that the screen began to wobble every time the machine made a noise. The slight reduction in volume isn't really noticeable, and nobody could ever accuse the Oric or Atmos of being quiet. The sound is produced by an industry standard chip that is in use in a lot of arcade games and is still going strong, an identical device is in the new Amstrad and Tatung micros. It produces three sound channels with full enveloping.

Excellent Graphics

Graphics is where the Atmos really shows its form. Text is available on a 40 × 28 screen with a reserved status line at the top leaving 27 useable lines. The text is compatible with teletext and can produce displays identical to those on Prestel and Ceefax/Oracle. This means you can have flashing characters, double height, and eight foreground and background colours. The really big advantage (as Electron and 16K Spectrum owners will confirm) is that this kind of display uses up only 1K of memory plus 2K for the user definable character set, thus leaving you with about 44K useable out of the original 64K.

The hi-res graphics are good as well. The hi-res screen is composed of 240 × 200 points with three text lines at the bottom. Eight foreground and background colours are supported along with flashing, giving 48000 plottable points as opposed to the ZX Spectrum's 45056 points which is 3000 points higher resolution. This means that all those nasty aliens can look even nastier! The way the colour works is interesting too. The colour information is stored on the screen along with the pattern information, this gives a great increase in the number of colours in any one area. With the ZX Spectrum the screen is divided up into 32 × 32 sections, only two colours are allowed in each of these sections. You may have noticed the ugly flashing squares that occur when two objects collide in a ZX Spectrum game, this is why. The Atmos, on the other hand, has a 40 × 200 grid for colours. So the corresponding Atmos screen can have all eight colours in each of its squares. IJK use these 'multi-colour' graphics to good effect in their Zorgon's Revenge program.

Good BASIC

The BASIC is straight Microsoft as found on most business machines, the Commodore series, and is considered the standard BASIC, you can't type in these programs directly — but it makes converting them very easy. The BASIC is also structured, in a similar way to the BBC/Electron. There is REPEAT-UNTIL and IF-THEN-ELSE...Full graphics commands are supported with CIRCLE, FILL, and DRAW. This BASIC is very easy to use and learn.

The manual is fantastic and should be the base line for other manuals to be compared against. It gives full details of the whole system from how to use the BASIC to machine code use and hardware details. There is something for everyone.

Conclusion

I think this £170 micro is far superior to the ZX Spectrum in performance and value and beats the Electron due to its larger memory, speed, and built in interfaces. The only machine that it will have difficulties with is the Commodore 64 but the Atmos has a better BASIC and is cheaper.

The Runaway Robot Replies

Dear Sir
Could you please be of assistance. Last month I bought a Sharp MZ-700 64K computer but it appears that I can find no magazine on the market that can help me program games into it for my two boys. My newsagent sent me a copy of your March edition of *Games Computing* and there was a game in it for the Sharp MZ 80 K, the game was called Zombie Island, so I can't type it in.

Have you any games in your magazine for the MZ 700 at all, because it appears that I have bought a computer that has no magazine games for it. If so, then as I have not finished paying for the computer I will cut my losses by getting the shop to take the computer back and buy another brand that I can type games in for.

I do hope you can help me.
J Balls
Norfolk

When choosing a computer you have to look at the application that the computer is to be put to. In your case, the type of computer you want is a large memory general purpose home computer with a proper keyboard that there are plenty of games in magazines for you to type in.

I would recommend that you 'cut your losses' with the Sharp as this is not really suited for your kind of purpose. I think a Commodore 64 would be much more suitable for your needs as this is a much better machine, and is currently the best selling computer in Britain. Magazines, such as Games Computing, print lots of programs for this machine but very few programs for the Sharp due to its low popularity.

Dear Editor
Congratulations on such an excellent magazine, and many thanks to you for publishing the Oric-1 programs in the May issue — thanks are also due to the authors (of course).

In particular, especially to the author of 'HiResAlt' City. That program has given me many hours of enjoyment of late.

The author, I feel, has made on important omission — i.e. a speed level. My brothers (all younger) found the game a bit too fast to master. To overcome this people interested should include these lines:

```
0  CLS:PRINT
1  PRINT "Speed (1-5) ?":PRINT"1 is
   the hardest"
2  GET Q$:IF Q$<CHR$(49) OR
   Q$>CHR$(53) THEN 2
3  SP=(2 * (VAL(Q$))-2)
   25 WAIT SP
```

Now for some help. Can you tell me how to avoid an 'Out of Memory' error whilst playing the 3D-Maze game also printed in the same May issue. I own the 48K Oric. I've tried altering HIMEM, but to no avail.
B Kidd
Gwent

Thanks for the suggestion about HiResAlt City. If anybody else has suggestions about games that we have printed don't hesitate to send them in.

We have no problem with 3D maze on our Oric, but some Orics have a bug in the 'garbage collection' routine that causes them to run out of memory. Also if you put in a GOSUB where there should have been a GOTO, you will run out of stack memory causing the same error condition.

Dear *Games Computing*
I am writing to tell you how much I enjoy your magazine and that I think it is great value.

Since the launch of the Atmos computer from Oric I have been waiting to see it in the shops, but I have not as yet. However I was wondering if you could tell me when and where the Atmos will be available in Scotland. I have written to Oric on this matter but all I got back was a colour catalogue.
Derek Scott
Renfrewshire
Scotland
PS. I am a VIC 20 owner and I am glad to see lots of listings for this machine in your mag. Keep it up!

A spokesman for Oric said "The nearest place to you that has the Atmos is Glasgow, which has two Dixons, one Comet, and one Laskeys. All of these shops sell the computer"

Dear *Games Computing*
I am writing to remind you that your magazine is brilliant, full of programs and information. The reviews always gives me an idea of what the games are like, but the thing that baffles me is why you have 'Postman Pat' on your address.

Thanks for reading.
Bye....
From Martain Scott
Merseyside
PS. I own a VIC 20 and I think that your magazine and my computer match.

His name is Pat because that is what we call him in the office!

Have you got any opinions to air, has someone somewhere upset you and you want to grizzle and gripe? Or maybe you're full of the joys of spring and feel like telling a happy story?
Whatever you want to say, be it good, bad or indifferent drop us a line here at Games Computing and get it off your shoulders.
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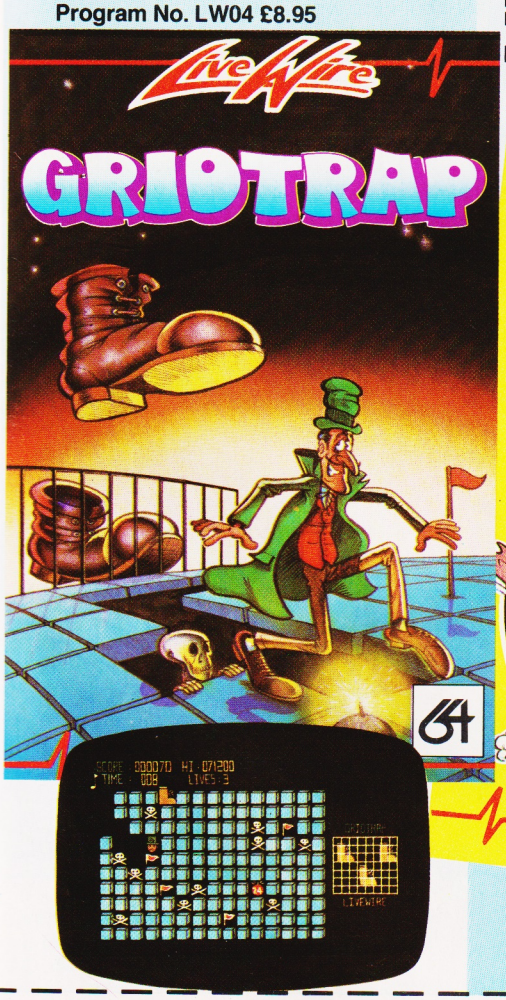

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HOLMES & MORIARTY

In this game you play the role of Dr Watson, gallantly attempting to rescue his friend Sherlock Holmes from the clutches of the evil Professor Moriarty. The program is a conventional text adventure in which you collect various objects as you move around, some of which are useful and others of which are 'treasures'. Only the latter score points, and if you succeed in rescuing Holmes without achieving a maximum score then you must have missed some along the way.

The program takes full advantage of the structures of BBC Basic with barely a GOTO or GOSUB in sight, despite all the branching required in an adventure. For BBC and Electron owners it should be quite simple to use the listing as a frame for creating alternative games by substituting different text etc. (Electron users will have to run the program in MODE 6, removing CHR$ codes from PRINT statements.) Owners of other micro's might also find the procedural structure helpful in understanding the logic of programming adventure games, though they may have to do a lot of recording to get the program running on their own machines.

RUNdown

After initialisation (lines 10 to 60) the main loop runs from lines 70 to 350 calling various procedures on the way. A simple approach is used in which the description of the current location, together with objects present, objects carried and exits

RUNS ON BBC/B

available is printed on every play. This obviates the need for commands such as LOOK AND INVENTORY that are commonly employed in larger scale adventure games. The players input at line 250 is processed in lines 260 to 340 to check whether it contains a space, which determines branching to procedures which deal with one or two word inputs. The game ends (line 350) if either the player quits, gets killed or 'wins' by reaching Holmes. Line 360 calls the appropriate finishing procedure. The function of the main procedures, in order of calling rather than listing is as follows:

PROCtitle (lines 1230-1310)
Prints title and initial instructions.

PROCdata (lines 480-650)
Sets initial value of flag variables (see below) and reads data into the text arrays.

PROCprintobj (lines 2000-2040)
A short procedure to print out the current list of objects carried without splitting words on the screen.

PROConeword (lines 960-1060)
Processes single word inputs. These are most commonly compass directions, so these are checked for first and PROCgo called if appropriate.

PROCgo (lines 1080-1210)
When a compass direction is entered this procedure checks for a legal exit. If it finds one then the new location is computed, otherwise an error message is printed.

PROCscore (lines 1620)
Prints current score on request and also final

Variables And Arrays Used

Text arrays: VE$,OB$,D$,L$ contain the verb and object list vocabularies, the directions (exits) permissible in each location and the location descriptions. Storing permitted exits as a string makes it easy to open up hidden exits by adding a new letter to the list.

Flag arrays: LOB contains the current location number of each object. 'C' has an entry for each carryable object. 'A 1' figure 1 means that the object is currently being carried, otherwise the value is 0 . 'TREAS' encodes the treasure status of each object. '0' denotes no treasure value, '1' a non-edible treasure and '2' an edible treasure.

Flag variables: LO contains the current location number. Other flag variables are set at either 1 or 0 according to whether a certain condition is true or false (DEAD, WIN, ROSE, VAMP, CAT, FALL, TRAP, PAD, HO, FP).

NO	Number of objects.
NCO	Number of carryable objects.
NV	Number of verbs.

PROCtest (lines 1330 to 1400) Checks the status of various flags, for example to detect a win or a death.

PROCtwords (lines 670-930) This procedure first checks whether the first and second words are in its verb and object vocabularies respectively. If it fails to find either then it prints a 'do not understand' message and exits. Next, it tests for the words GET, TAKE and DROP, calling PROCget if one is found. Otherwise, it checks for combinations of words that it understands and takes appropriate action (printing messages, changing flags etc) accordingly. If no combination is recognised then the procedure ends with the comment 'You cannot do that.'

PROCget (lines 390-460) After checking that the current object is able to be carried this procedure prints appropriate messages and changes flags for getting and dropping objects.

PROCwin (lines 1480-1550) Holmes greets his rescuer and the final score is printed.

PROCquit (lines 1570-1600) Self explanatory.

PROCdead (lines 1420-1460) Contains appropriate finishing off instructions.

WORD$	Unprocessed input string.
V$	Current verb.
W$	Current object.

```
    1 REM HOLMES AND MORIARTY
    2 REM An adventure game by
    3 REM Jonathan Evans
    4 REM March 1984
    5 REM
   10 MODE7:PROCtitle
   20 PROCdata
   30 PRINT'"Press SPACEBAR to start"
   40 *FX15,1
   50 REPEAT UNTIL GET=32
   60 CLS:PRINT''
   70 REPEAT
   80 L=0
   90 PRINT' CHR$131;"LOCATION:";L$(LO)
  100 PRINT 'CHR$130;"OBJECTS:";
  110 FOR I=1 TO NO
  120 IF LOB(I)=LO PRINT CHR$130;OB$(I);":";:L=L+1
  130 IF L>2 THEN PRINT:L=0
  140 NEXT I
  150  PRINT
  160 PRINT 'CHR$134;"EXITS:";
  170 FOR I=1 TO LEN(D$(LO))
  180 PRINT CHR$134;MID$(D$(LO),I,1);":";
  190 NEXT I
  200  PRINT
  210 PRINT 'CHR$129;"CARRYING:";:L=10
  220 FOR I=1 TO NCO
  230 IF C(I)=1 PROCprintobj
  240 NEXT I
  250 INPUT'',WORD$
  260  CLS:PRINT''
  270 P%=-1
  280 FOR I=1 TO LEN(WORD$)
  290 IF MID$(WORD$,I,1)=" " P%=I
  300 NEXT I
  310 IF P%<0 PROConeword:PROCtest:GOTO 350
  320 V$=LEFT$(WORD$,P%-1)
  330 W$=RIGHT$(WORD$,LEN(WORD$)-P%)
  340 PROCtwowords:PROCtest
  350 UNTIL V$="QUIT" OR  DEAD=1 OR WIN=1
  360 IF WIN=1 PROCwin ELSE IF DEAD=1 PROCdead ELSE PROCquit
  370 END
  380 :
  390 DEF PROCget
  400 IF WN>NCO PRINT'"You can't.":ENDPROC
  410 IF V$="DROP" AND C(WN)=0 PRINT'"You are not carrying the ";W$;:ENDPROC ELSE IF V$="DROP" C(WN)=0:NC=NC-1:LOB(WN)=LO:ENDPROC
  420  IF ROSE=0 AND WN=1 THEN PRINT'"You cannot do that yet.":ENDPROC
  430 IF NC>10 PRINT'"You cannot carry any more.":ENDPROC
  440 IF LOB(WN)<>LO PRINT'"I don't see the ";W$:ENDPROC
  450 C(WN)=1:LOB(WN)=-1:NC=NC+1
  460 ENDPROC
  470 :
  480 DEF PROCdata
  490 ENVELOPE4,4,-1,1,0,20,20,0,126,0,0,-126,126,126
  500  DIA=0
  510 LO=9:CAT1=0:CAT=0:NC=0:DEAD=0:WIN=0:HO=0:NO=26:NCO=17:NV=15:FALL=0:VAMP=1
  520  ROSE=0:FP=0:PAD=0:TRAP=0
  530  DIR$="UDNEWS"
  540 DIM VE$(NV),OB$(NO),D$(24),LOB(NO),C(NCO),TREAS(NCO),L$(24)
  550 FOR I=1 TO NV
  560 READ VE$(I):NEXT I
  570 FOR I=1 TO NO:READ OB$(I):NEXT I
  580 FOR I=0 TO 24
  590 READ L$(I),D$(I):NEXT I
  600 FOR I=1 TO NO
  610 READ LOB(I):NEXT I
  620 FOR I=1 TO NCO
  630 READ TREAS(I):C(I)=0
  640 NEXT I
  650 ENDPROC
  660 :
  670 DEF PROCtwowords
  680 LOCAL I%,K%,K1%,K2%
  690 K%=0:K1%=0:K2%=0
  700 FOR I%=1 TO NV
  710 IF V$=VE$(I%) K1%=1:VN=I%
  720 NEXT I%
  730 FOR I%=1 TO NO
  740 IF W$=OB$(I%) K2%=1:WN=I%
  750 NEXT I%
  760 IF K1%=0 OR K2%=0 PRINT'"I do not understand you.":ENDPROC
  770 IF V$="GET" OR V$="TAKE" OR V$="DROP" PROCget:ENDPROC
  780  IF V$="WAVE" AND W$="CRUCIFIX" AND VAMP=1 AND LO=10 SOUND1,4,220,254:PRINT'"You wave the crucifix. There is "'"a dreadful screeching noise.":VAMP=0:ENDPROC
  790 IF V$="PICK" AND W$="ROSE" ANDLO=19 AND ROSE=0 PRINT'"You pick the rose.":ROSE=1:ENDPROC
  800  IF V$="DRINK" AND W$="WINE" ANDC(10)=1 PRINT'"You drink the wine. It gives you the "'"strength to climb out.":C(WN)=0:LOB(WN)=-1:D$(LO)=D$(LO)+"U":ENDPROC
  810 IF V$="CUT" AND W$="PADLOCK" AND LO=4 AND C(16)=1 AND PAD=0 PRINT'"You cut the padlock with the hacksaw."'"The shed door is now open to the west.":D$(LO)=D$(LO)+"W":PAD=1:ENDPROC
  820 IF V$="CUT" AND W$="PADLOCK" AND PAD=1 PRINT'"The padlock is already cut.":ENDPROC
  830 IF V$="READ" AND W$="NOTE" AND C(12)=1 PRINT'"The note says that Holmes is hidden "'"in a secret cellar in the house.":ENDPROC
  840 IF V$="OPEN" AND W$="TRAPDOOR" AND C(13)=1 AND LOB(19)=16 AND TRAP=0 THEN PRINT'"You open the trapdoor with the crowbar.":TRAP=1:D$(LO)=D$(LO)+"D":ENDPROC
  850 IF WN>17 GOTO 860 ELSE IF V$="EAT" AND C(WN)<>1 PRINT'"You are not carrying the ";W$:ENDPROC ELSE IF V$="EAT" AND  TREAS(WN)=2 THEN PRINT'"You eat the ";W$:C(WN)=0:ENDPROC ELSE IF V$="EAT" PRINT'"You cannot be serious!":ENDPROC
  860 IF V$="FEED" AND W$="CAT" AND CAT=1 AND C(11)=1 THEN PRINT'"The cat eats the herring. She chokes,"'"spits out a hacksaw and runs away.":LOB(16)=LO:CAT=0:C(11)=0:NC=NC-1:ENDPROC
  870 IF V$="SMASH" AND W$="STATUE" AND C(7)=1 AND LO=14 AND LOB(5)=-1 PRINT'"You break the statue with the hammer. A"'"sovereign falls to the ground.":LOB(5)=LO:EN
```

HOLMES & MORIARTY

RUNS ON BBC/B

```
DPROC
  880 IF V$="UNLOCK" AND W$="CHEST" AND LO=10 AND C(17)
=1 PRINT'"You unlock the chest with the key."'"There is
 a spyglass inside.":LOB(14)=LO:ENDPROC
  890 IF V$="ENTER" AND W$="HOUSE" AND LO=9 AND HO=0 FO
R L=-15 TO -8:SOUND0,L,5,1.5:NEXT L: PRINT'"You enter t
he house. The door locks "'"behind you.":LO=8:HO=1:ENDP
ROC
  900 IF V$="ENTER" AND W$="FIREPLACE" AND LO=23 AND FP
=0 PRINT'"You enter the fireplace. There is a "'"secret
 tunnel leading east to the"'"vegetable garden":D$(LO)=
D$(LO)+"E":D$(24)=D$(24)+"W":FP=1:ENDPROC
  910 IF V$="ENTER" AND W$="FIREPLACE" AND LO=23 AND FP
=1 PRINT'"The secret tunnel leads east.":ENDPROC
  920 IF V$="LIFT" AND W$="CARPET" AND LO=16 AND LOB(25
)=16 THEN PRINT'"You lift the carpet.":LOB(19)=LO:LOB(2
5)=-1:ENDPROC
  930 PRINT'"You cannot do that."
  940 ENDPROC
  950 :
  960 DEF PROConeword
  970 K%=0 :V$=WORD$
  980 FOR I%=1 TO 6
  990 IF V$=MID$(DIR$,I%,1)K%=1
 1000 NEXT I%
 1010 IF K%=1 PROCgo:ENDPROC
 1020  IF V$="HELP" PRINT'"You must enter one or two wo
rds. To"'"move to a new location type U(up),"'"D(down),
N(north),S(south),E(east),"'"or W(west). To give up typ
e 'QUIT'."'"To check score type 'SCORE'.":ENDPROC
 1030 IF V$="QUIT"  ENDPROC
 1040 IF V$="SCORE" PROCscore :ENDPROC
 1050  PRINT'"I do not understand you."
 1060 ENDPROC
 1070 :
 1080 DEF PROCgo
 1090 LOCAL I%,N%,K%
 1100 K%=0:N%=LEN(D$(LO))
 1110 FOR I%=1 TO N%
 1120 IF V$=MID$(D$(LO),I%,1) K%=1
 1130 NEXT I%
 1140 IF K%=0 PRINT'"There is no way to go in that "'"d
irection.":ENDPROC
 1150 IF V$="U" AND LO=1 V$="E" ELSE IF V$="U" V$="W"

 1160 IF V$="D" AND LO=2 V$="W" ELSE IF V$="D" V$="E"

 1170 IF V$="E" LO=LO+1
 1180 IF V$="W" LO=LO-1
 1190 IF V$="N" LO=LO-5
 1200 IF V$="S" LO=LO+5
 1210 ENDPROC
 1220 :
 1230 DEF PROCtitle
 1240 PRINT CHR$141;CHR$129;CHR$157;CHR$130;"      HOLME
S AND MORIARTY"
 1250 PRINT CHR$141;CHR$129;CHR$157;CHR$130;"      HOLME
S AND MORIARTY"
 1260  PRINT TAB(15,3);CHR$131;"By"
 1270 PRINT TAB(10,5);CHR$131;"Jonathan Evans"
 1280 PRINT'''"Sherlock Holmes has been captured by"'"t
he evil Professor Moriarty and hidden"'"somewhere in hi
s house or grounds."'"As his faithful friend Dr Watson,
 you"'"must try to rescue him, collecting"
 1290 PRINT"any useful or valuable objects you come"'"a
cross on your way."
 1300 PRINT'"You have climbed over the wall into"'"Prof
essor Moriarty's front garden."'"If you need help type
HELP."
 1310 ENDPROC
 1320 :
 1330  DEF PROCtest
 1340  IF LO=1 AND FALL=0 THEN FOR L =150 TO 50 STEP -5
:SOUND1,-15,L,1:NEXT L:PRINT'"You have fallen into the
wine cellar"'"from which there is no apparent exit.":FA
LL=1
 1350 IF LO=17 WIN=1: ENDPROC
 1360 IF LO=15 AND VAMP=1 DEAD=1:ENDPROC
 1370 IF LO=15 AND CAT1=0 THEN CAT=1:CAT1=1
 1380 IF CAT=1 PRINT'"There is a cat following you."
 1390  IF LO=10 AND VAMP=1 PRINT'"Vampire bats are circ
ling to the south."
 1400 ENDPROC
 1410 :
 1420 DEF PROCdead
 1430 PRINT'"You are attacked by vampire bats "'"and ki
lled."
 1440  FOR L=1 TO 5:SOUND0,-15,5,10:FORL1=1 TO RND(50):
NEXT L1:NEXT L
 1450 PROCscore
 1460 ENDPROC
 1470 :
 1480 DEF PROCwin
 1490  PRINT'CHR$141;CHR$133;CHR$136;SPC(6);"!!!CONGRAT
ULATIONS!!!"
 1500  PRINTCHR$141;CHR$133;CHR$136;SPC(6);"!!!CONGRATU
LATIONS!!!"
 1510  PRINT'''"You have found Sherlock Holmes and"'"re
scued him. He says,'Besides the"'"obvious facts that yo
u have survived"'"the vampire bats, extracted the hacks
aw"'"from the herring, walked through the "
 1520 PRINT"drawing room fireplace and entered the"'"ga
rden shed I can deduce nothing.'"
 1530  FOR L=50 TO 200 STEP 5:SOUND1,-15,L,1:NEXT L
 1540 PROCscore
 1550 ENDPROC
 1560 :
 1570 DEF PROCquit
 1580 PRINT'"Giving up already, eh? No stamina."
 1590 PROCscore
 1600 ENDPROC
 1610 :
 1620  DEF PROCscore:SCORE=0
 1630 FOR I=1 TO NCO
 1640 IF C(I)=1 AND TREAS(I)>0 SCORE=SCORE+10
 1650 NEXT I
 1660 IF WIN=1 SCORE=SCORE+60
 1670 PRINT'"You have scored ";SCORE;" out of 150."
 1680 ENDPROC
 1690 :
 1700 DATA PICK,DRINK,CUT,READ,OPEN,EAT,FEED,SMASH,UNLO
CK,ENTER,LIFT,GET,TAKE,DROP,WAVE
 1710 DATA ROSE,TOBACCO,DEERSTALKER,CHEESE,SOVEREIGN,CR
UCIFIX,HAMMER,VIOLIN,TOMATOES,WINE,HERRING,NOTE,CROWBAR
,SPYGLASS,DECANTER,HACKSAW,KEY,PADLOCK,TRAPDOOR,CAT,STA
TUE,CHEST,FIREPLACE,HOUSE,CARPET,SHED
 1720 DATA Butler's Room,S
 1730 DATA Wine cellar,""
 1740 DATA Kitchen,DS
 1750 DATA Inside the shed,E
 1760 DATA Patio,S
 1770 DATA Long Gallery,NSD
 1780 DATA Spiral Staircase,UE
 1790 DATA Great Hallway,NSEW
 1800 DATA Lobby,W
 1810 DATA Lawn in front of house,NS
 1820 DATA Dressing room,NSE
 1830 DATA Boudoir,W
 1840 DATA Dining room,NE
 1850 DATA Morning room,WS
 1860 DATA Ornamental pond,NS
 1870 DATA Moriarty's room,N
 1880 DATA Study,S
 1890 DATA Hidden Cellar,U
 1900 DATA Narrow Passageway,NS
 1910 DATA Rose Garden,NS
 1920 DATA Chapel,E
 1930 DATA Oak panelled library,NWE
 1940 DATA Music Room,EW
 1950 DATA Drawing room,NW
 1960 DATA Vegetable garden,N
 1970 DATA 19,0,11,12,-1,20,18,22,24,1,2,3,3,-1,1,-1,21
,4,-1,-1,14,10,23,-1,16,4
 1980 DATA 1,1,1,2,1,0,0,1,2,0,0,0,0,1,1,0,0
 1990 :
 2000 DEF PROCprintobj
 2010 LE=LEN(OB$(I))+2
 2020 L=L+LE:IF L>39 THEN PRINT:L=LE
 2030 PRINT CHR$129;OB$(I);":";
 2040 ENDPROC
```

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Software Projects	Tribble Trubble	5.95	5.00
Software Projects	Orion	5.95	5.00
Software Projects	Ometron	5.95	5.00
Software Projects	Push Off	5.95	5.00
Software Projects	Thrusta	5.95	5.00
Digital	Fighter Pilot	7.95	6.35
Digital	Night Gunner	6.95	5.70
Richard Wilcox	Blue Thunder	5.95	5.00
CRL	Glug Glug	5.95	4.75
Quicksilva	Snowman	6.95	6.00
Quicksilva	Fred	6.95	6.00
Quicksilva	Traxx	6.95	6.00
Quicksilva	Lazerzone	6.95	6.00
Quicksilva	3-D Ant Attack	6.95	6.00
Quicksilva	Bugaboo	6.95	6.00
Quicksilva	Aquaplane	6.95	6.00
Quicksilva	Timegate	6.95	6.00
CDS	Spectrum Safari	5.95	5.00
CDS	Magic Meanies	5.95	5.00
CDS	Time Bomb	5.95	5.00
Timescape	Wild West Hero	5.95	5.00
Ocean	Eskimo Eddie	5.95	5.00
Ocean	Pogo	5.95	5.00
Ocean	Mr. Wimpey	6.90	5.90
Ocean	Kong	5.95	5.00
Ocean	Hunchback	6.90	6.00
Melbourne House	Penetrator	6.95	6.00
Abbex	Krakatoa	5.95	5.00
Crystal	Rommel's Revenge	6.50	5.40
Crystal	Invasion of Bodysnatchas	6.50	5.90
Crystal	Hall of the Things	7.50	6.20
New Generation	Knot in 3-D	5.95	4.95
New Generation	3-D Tunnel	5.95	4.95
A & F Software	Chuckie Egg	6.90	5.90
Anirog	Missile Defence	5.95	4.95
Psion	Chequered Flag	6.95	6.70
Psion	Hungry Horace	5.95	5.50
Psion	Horace & the Spiders	5.95	5.70
Psion	Horace Goes Skiing	5.95	5.70
Spectresoft	Strike Four	7.95	6.70
Fantasy	Pyramid	5.50	5.10
Fantasy	Doomsday Castle	6.50	5.10
DK-Tronics	Startrek 3000	4.95	4.50
Martech	Harrier Attack	5.95	5.00
Martech	Scuba Dive	6.95	5.95
Martech	Jungle Trouble	5.50	4.75
Micromega	Deathchase	6.95	5.35
Micromega	Haunted Hedges	6.95	5.35
Softek	Microbot	5.95	5.35
Hewson	3-D Seidabb Attack	5.95	4.75
Microsphere	Wheelie	5.95	5.00
Vortex	Android Two	5.95	4.75
Artic	Bear Bovver	6.95	5.60
Games Machine	Skull	6.95	5.60
Bug-Byte	Cavern Fighter	5.95	5.00
DJL	Froggy	5.95	4.75
Artic	3-D Combat Zone	5.95	5.00
Incentive	1984	5.50	4.75
Incentive	Millionaire (ff)	5.50	5.00
Incentive	Temple of Vran	5.50	5.00
Incentive	Mountain of Ket	5.50	4.75
Quicksilva	Dragonsbane	6.95	6.10
Red Shift	Rebel Star Raider	9.95	8.95
Red Shift	Apocalypse	9.95	8.95
Red Shift	Nebular	6.95	5.95
Protek	Hunter Killer	7.95	6.95
Legend	Valhalla	14.95	12.50
Melbourne House	Hobbit	14.95	12.50
Melbourne House	Classic Adventure	6.95	5.95
Addictive Games	Football Manager	6.95	5.95
Mikrogen	Mad Martha II	6.95	5.95
Level 9	Snowball	9.90	8.90
Level 9	Colossal Adventure	9.90	8.90
Level 9	Lords of Time	9.90	8.90
Crystal	Dungeon Master	7.50	6.10
Hewson	Nightflite II	7.95	6.95
Doric	Oracle's Cave	7.95	6.95
Richard Shepherd	Transylvanian Tower	6.50	5.25
Richard Shepherd	Urban Upstart	6.50	5.25
Microgame	Battle of Britain	5.95	4.75
Micromart	Strike Attack II	6.95	5.95
Mclothlorien	Johnny Reb	5.50	4.95
Mclothlorien	Red Baron	5.95	4.75
Mclothlorien	Confrontation	7.95	6.95
Psion	Flight Simulation	7.95	7.50
Psion	Scrabble	15.95	14.50
Phipps	The Forest	9.95	8.95
Ocean	Royal Birkdale	6.90	5.95
Mr. Chip	Darts	5.95	5.00
CDS	Pool	5.95	5.00
Visions	Snooker	8.95	7.95
CP Software	Superchess III	8.95	7.95

Oric

Software House	Game	RRP	Our Price
Martech	Scuba Dive	6.95	5.95
Martech	Starfighter	6.95	5.95
Martech	Harrier Attack	6.95	5.95
IJK	Zorgon's Revenge	8.50	7.50
IJK	Xenon-1	8.50	7.50
Ocean	Mr. Wimpey	6.90	5.90
Ocean	Hunchback	6.90	5.90
Softek	Dracula's Revenge	6.95	6.10
Softek	Super Meteors	6.95	6.10
Softek	Ice Giant	6.95	6.10
Softek	Acheron's Rage	6.95	6.10
Mclothlorien	Two Gun Turtle	6.95	5.95
Level 9	Colossal Adventure	9.95	8.95
Level 9	Snowball	9.95	8.95
Melbourne House	Hobbit	14.95	12.95

Commodore 64

Software House	Game	RRP	Our Price
CDS	Colossus Chess (cass)	9.95	8.95
Alligata	Killerwatt	7.95	6.95
Terminal	Plumb Crazy	7.95	6.95
Anirog	Space Pilot	7.95	6.95
Incentive	Splat	6.50	5.50
Coming Martech	Harrier Attack	6.95	5.95
Supersoft	Stix	8.95	7.95
Supersoft	3-D Glooper	8.95	7.95
Visions	Snooker	8.95	7.95
Big G	Zylogon	6.95	5.95
Big G	Megahawk	6.95	5.95
Martech	Scuba Dive	6.95	5.95
Llamasoft	Hellgate	5.00	4.75
Llamasoft	Gridrunner	5.00	4.75
Llamasoft	Hovver Bovver	7.50	6.50
Llamasoft	Attack of Mutant Camels	7.50	6.50
Llamasoft	Lazer Zone	7.50	6.50
Llamasoft	Matrix	7.50	6.50
Quicksilva	Bugaboo	7.95	6.95
Quicksilva	Sting 64	7.95	6.95
Quicksilva	Purple Turtles	7.95	6.95
Quicksilva	Quintic Warrior	7.95	6.95
Quicksilva	Aquaplane	7.95	6.95
Ocean	Chinese Juggler	6.90	5.90
Ocean	Hunchback 64	6.90	5.90
Ocean	Mr. Wimpey 64	6.90	5.90
Anirog	3-D Time Trek (Turbo Load)	5.95	5.10
Anirog	Kong	7.95	6.95
Anirog	Skramble (Turbo Load)	7.95	6.95
Anirog	Moon Buggy (Turbo Load)	7.95	6.95
Anirog	H-Expert (Turbo Load)	7.95	6.95
Anirog	Cosmic Commando	5.95	5.10
Anirog	Indian Attack (Turbo Load)	5.95	5.10
Terminal	Star Commando	7.95	6.95
Bubble Bus	Flying Feathers	6.99	5.95
Bubble Bus	Widow's Revenge	6.99	5.95
Bubble Bus	Exterminator	6.99	5.95
Bubble Bus	Hustler	6.99	5.95
Software Projects	Dinky Doo	7.95	6.95
Software Projects	Manic Miner	7.95	6.95
Software Projects	Crazy Balloons	7.95	6.95
Taskset	Super Pipeline	6.90	5.90
Taskset	Jammin	6.90	5.90
PSS	Neoclypse	7.95	6.95
PSS	Metroblitz	7.95	6.95
PSS	Crystals of Zong	7.95	6.95
Alligata	Blagger	7.95	6.95
Alligata	Bat Attack	7.95	6.95
Alligata	Squashafrog	7.95	6.95
Audiogenic	Motor Mania	8.95	7.95
Softek	Ugh	7.95	6.95
Softek	Zoids	7.95	6.95
Imagine	Pedro	3.95	3.75
DK Tronics	Speed Duel	5.95	4.95
DK Tronics	3-D Tanx	6.95	5.95
Spectresoft	Mission OM	7.95	6.95
Spectresoft	Crisis Countdown	7.95	6.95
CRL	Derby Day	6.95	5.95
Interceptor	Wheelin Wally	7.00	6.00
Interceptor	Burger Time	7.00	6.00
Interceptor	Missile Command	7.00	6.00
Interceptor	Get Off My Garden	7.00	6.00
Interceptor	China Miner	7.00	6.00
Interceptor	Defenda	7.00	6.00
Interceptor	Panic 64	7.00	6.00
Interceptor	Spriteman	7.00	6.00
Interceptor	Cuddly Q-Bert	7.00	6.00
Interceptor	Siren City	7.00	6.00
Interceptor	Vortex Raider	7.00	6.00
Alligata	Aztec Tomb	7.95	6.95
Melbourne House	Hobbit 64	14.95	12.95
Martech	Quest of Merravid	7.95	6.95
Level 9	Lords of Time	9.95	8.95
Level 9	Snowball	9.95	8.95
Level 9	Colossal Adventure	9.95	8.95
DK Tronics	Dictator 64	5.95	4.95
Bug Byte	Twin Kingdom Valley	9.50	8.50
Interceptor	Heros of Karn	7.00	6.00
Interceptor	Tokens of Ghall	7.00	6.00
Quicksilva	Ultisynth	14.95	12.95
Richard Shepherd	Super Spy	6.50	5.50
Richard Shepherd	Everest	6.50	5.50
Richard Shepherd	Ship of the Line	6.50	5.50
Richard Shepherd	Transylvanian Tower	6.50	5.50
Cosmi	Forbidden Forest	8.95	7.95
Cosmi	Aztec Challenge	8.95	7.95
Microprose	Solo Flight	14.95	12.95

BBC

Software House	Game	RRP	Our Price
Amcom/Pace	Fortress (Cass)	8.95	8.95
Alligata	Dambusters	7.95	6.95
MRM	Q-Man's Brother	5.90	5.10
Gemini	Liberator	9.95	8.95
Gemini	Missile Control	9.95	8.95
Alligata	Eagle Empire	7.95	6.95
Alligata	Bug Blaster	7.95	6.95
Opus Supplies	Amaze in Space	9.95	8.95
Opus Supplies	Dogfight	9.95	8.95
Psion	Saloon Sally	5.95	5.10
Supior	Hunchback	6.90	5.90
Quicksilva	Wizard	6.95	5.95
Quicksilva	Protector	7.95	6.95
A & F Software	Chuckie Egg	7.90	6.95
A & F Software	Cylon Attack	7.90	6.95
Software Invasion	Vortex	7.95	6.95
Software Invasion	3-D Bomb Alley	7.95	6.95
Software Invasion	Gunsmoke	7.95	6.95
Software Invasion	Attack on Alpha Centauri	7.95	6.95
MRM	Q-Man	5.90	5.10
MRM	Guy in the Hat	5.90	5.10
MRM	3-D Munchee	5.90	5.10
Doctorsoft	Gorf	7.95	6.95
Software Projects	Legion	7.95	6.95
Micro-Byte	3-D Space Ranger	7.95	6.95
Softspot	Transistors Revenge	7.95	6.95
Softspot	Heist	7.95	6.95
Visions	Snooker	8.95	7.95
Visions	Dare Devil Dennis	8.95	7.95
Imagine	Pedro	3.95	3.95
H. Soft	Penguin	7.95	6.95
Adventure INT	Millionaire (ff)	6.50	5.50
Adventure INT	Pirate Adventure	9.95	8.95
Adventure INT	Secret Mission	9.95	8.95
Adventure INT	Voodoo Castle	9.95	8.95
Adventure INT	Adventureland	9.95	8.95
Level 9	Colossal	9.90	8.90
Level 9	Snowball	9.90	8.90
Level 9	Lords of Time	9.90	8.90
DK Tronics	Dictator	6.95	5.95
Red Shift	Apocalypse	9.95	8.95
Melbourne House	Hobbit	14.95	12.95
Bug Byte	Twin Kingdom Valley	9.50	9.50
Doctorsoft	747 Flight Simulation	8.95	7.95

Commodore VIC-20

Software House	Game	RRP	Our Price
Micro Antics	Chariot Race	6.95	5.95
Terminal	Pinball Wizard	6.95	5.95
Audiogenic	Bonzo	7.95	6.95
Llamasoft	Hellgate	6.00	5.40
Llamasoft	Metagalactic Llamas	6.00	5.40
Llamasoft	Matrix	6.00	5.40
Llamasoft	Gridrunner	6.00	5.40
Llamasoft	Lazer Zone	6.00	5.40
Voyager	Mower Mania	5.99	5.10
Melbourne House	Cosmonauts	5.95	5.10
Melbourne House	Wizard and the Princess	5.95	5.10
Software Projects	Space Joust	5.95	5.10
Ultimate	Jet Pac	5.50	5.10
Interceptor Micros	Crazy Kong	6.00	5.10
Interceptor Micros	Falcon Fighter	6.00	5.10
Quicksilva	Skyhawk	7.95	6.95
Quicksilva	Tornado	5.95	5.40
Imagine	Arcadia	3.95	3.95
Imagine	Bewitched	3.95	3.95
Terminal	Skramble	6.95	5.95
Anirog	Dark Dungeons	5.95	5.40
Anirog	Star Defence	7.95	6.95
Anirog	Fire Galaxy	7.95	6.95
Anirog	Battlefield	5.95	4.95
Anirog	Kong	5.95	4.95
Martech	Quest of Merravid	7.95	6.95
Visions	Snooker	8.95	7.95
MMS	Practicalc	29.95	25.00

Dragon-32

Software House	Game	RRP	Our Price
Beyond	Kreigspiel	6.95	5.95
Imagine	Pedro	3.95	3.95
Melbourne House	Hungry Horace	5.95	5.30
Softek	Ugh	8.95	7.95
Imagine	Leggit	3.95	3.95
Beyond	Up Periscope	6.95	5.95
Cable Software	Trace Race	8.75	7.75
J. Morrison Micros	Maurice Minor	6.95	5.95
J. Morrison Micros	Bonka	6.95	5.95
J.Morrison Micros	Chess	7.95	6.95
Richard Shepherd	Transylvanian Tower	6.50	5.50

Sinclair ZX-81

Software House	Game	RRP	Our Price
Software Farm	49-ER	5.95	5.00
New Generation	3-D Monster Maze	4.95	4.50
New Generation	3-D Defender	4.95	4.50
Quicksilva	3-D Blackstar	4.95	4.65
Quicksilva	Damper + Glooper	4.95	4.65
Quicksilva	QS Asteroids	3.95	3.95
Quicksilva	Galaxians/Gloops	4.95	4.65
Quicksilva	QS Invaders	3.95	3.75
Quicksilva	QS Scramble	3.95	3.75
Quicksilva	Munchees	3.95	3.75
CRL	Hi-Res Graphics Kit	5.95	4.95
Steven Hartley	Sea Wolf	3.95	3.75

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Virgin REPORT

Head of games software firm Virgin Nick Alexander spells out a dismal time for those involved in the industry.

When Virgin Games' leader Nick Alexander finds time off from working on the brand new Virgin venture into Atlantic air crossings he takes stock of the current software game only to see gloom and despondency for everyone involved.

And if you're thinking, 'hang on a sec, whatever happened to the Great-Home-Computer-Software-Boom that turned poor programmers into millionaires virtually overnight'?, Nick will be more than happy to tell you.

According to Nick, and fellow software manufacturers, this year and possibly next will see the downfall of many software producers, including some well established household names.

Since Christmas, when software firms went on a spend, spend, spend spree in publicity and advertising, the bottom has all but fallen out of the market. It sounds like drastic stuff but Nick is sure that things will get worse before they begin to get better.

And he blames the sudden downturn in sales on mainly two things. First, widespread software piracy and second, fewer large orders from retailers.

We all know that software has been copied from commercially available games for years. But now the problem is significantly worse 'bearing in mind that it is very awkward to guage' said Nick. He reckons that firms producing software have underestimated the market and forgot that there would be loads of computers around which makes copying easier. 'It's all right when only one kid in the class owns a computer, be it a Spectrum of whatever, because obviously tape copying cannot take place. But when you get 20 kids with the same computer copying is bound to happen.' And he agrees that most of you don't get huge amounts of pocket money each week and that some programs are relatively expensive to buy. So he feels he can't really blame you for copying games.

On a serious note . . .

But Nick is also chairman of the Guild of Software Houses which was set up to be the 'voice' of software firms. It's when he dons his chairman's hat that he feels something must be done about software piracy. In fact the Guild (or GOSH as it's otherwise known) feels so strongly about the matter that it has recently set up a team to investigate practical ways of tackling the problem.

One of the solutions to the problem is to start a fund specially to pay for legal costs in any court actions involving breach of copyright. 'In the video business £1 million a year is spent on dealing with piracy and we would be pleased to have £100,000 to spend on it.' he said.

It sounds like a lot of cash to raise. Yet it will all come from member companies to GOSH who will be asked to donate a sum according to some sort of turnover related fee structure. However, it's not all plain sailing because of the financial difficulties many software firms are currently suffering. To start with it costs firms £500 a year to join GOSH and piracy fund donations could run into thousands. So those firms whose financiers are getting anxious about ever seeing their money again might be a little reluctant to loan more for something which will not reap immediate financial rewards. So the message is: DON'T COPY SOFTWARE, you will be the ultimate losers.

But back to reasons for fewer sales. According to Nick, during 1983 many new retail outlets opened up taking enormous stocks of programs. Everyone thought 'whoopee!' and projected similar orders/sales for 1984. Unfortunately that didn't happen. So far this year very few new retail shops selling software have opened. The stocks ordered by last years' new shops is largely still there today and the retailers are not now ordering in such big quantities. So software firms' big spend, spend, spend has had to stop — or the firms will go out of business or sell out. For example, Nick says Virgin is currently talking to no less than five firms with regard to buying them out. He wouldn't say who they were.

Future Fortunes

However bleak the forecast Nick is not losing too much sleep over it yet. He's been in business for a long time and has seen the same pattern of events in both the record and video markets. 'Luckily Virgin Games has a lot of financial backing from the Virgin Group so we should be able to sit it out, although I don't think we'll be making much of a profit this year. And I fear that the survivors will be those firms who can persuade their financiers that if they sit tight and ride the storm they will see rewards in the end.' At least he can see a light at the end of the tunnel.

What does this mean for Virgin Games products? Even if firms cut back on overheads, like publicity, advertising and extravagant product launches they will still have to pay all the staff to keep present products coming out.

When Virgin Games first started charting its software course the firm's policy was to launch a wide range of titles across several different machines every six weeks. This, of course, proved to be an expensive exercise despite quickly building up a good range of programs. Nick has decided that in order to survive the storm Virgin Games will have to cut their overheads by reducing advertising and, more importantly for you, they will have to reduce the number of new games releases over the next few months. 'In July and August we will reduce the number of new titles every six weeks but in September we hope to start increasing them again.' said Nick.

In the meantime Virgin is taking the opportunity to recruit new programmers who will work in-house rather than employ contract programmers and use unsolicited contributions as was Virgin's original policy. They are to start working on the forth coming range of Virgin games with which the company hopes will stun the softw are world come the autumn.

Flying High

And on top of coping with the gloom and despondency of the software business Nick is currently spending about 80% of his time working with Richard-entrepreneur-extraordinaire-Branson on the forthcoming new airline launched by the Virgin Group. Nick's job with Virgin Atlantic is marketing director which means it's down to him to organise a million and one things in preparation for the launch. Like briefing designers to work on the exterior and interior of the aeroplanes, finding the most economical range of equipment to install in them, arranging the catering for the flights, drawing up a design for the flight tickets and ensuring everything complies to the very stringent rules and regulations laid down by the aviation authorities.

'At the moment I find I have about one hour spare every day — and in that I get time to eat supper', said the slightly weary Nick. Is it any wonder he says he's feeling 'rather frazzled at the edges'? But luckily Nick Alexander is the sort of person who always bounces back — and when I left him he quite happily zoomed off in his bright red BMW towards the next major headache awaiting him, be it from Virgin Games or Virgin Atlantic.

answers

ANSWERS

1. INTERSTELLAR INTERFERENCE
Its time to tune in and drop out. The numbers are the positions on your radio wave band where you would be able to receive Radios 1, 2, 3 and 4. The first set of numbers is kHz, the second, metres.

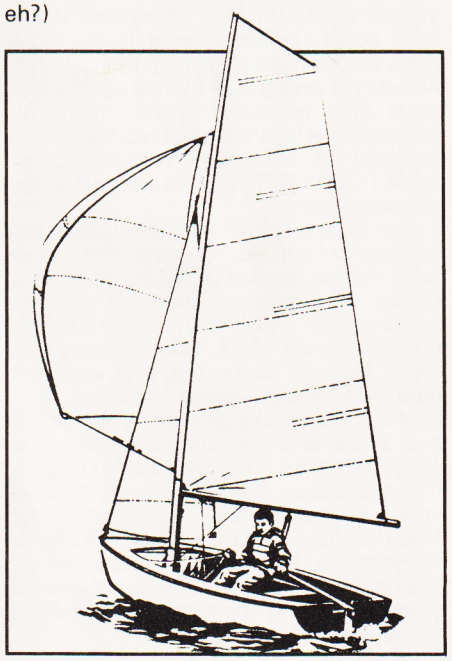
2. AN AMAZING FEET?
Cyril was able to get into bed before the room went dark because he went to bed in the daytime. No fool our Cyril. How about you?

3. DRINKING UP TIME
Steve O'Marvin arrived home on the last stroke of midnight. The clock, of course, had already struck eleven times before he entered the house. By the time he had sobered up enough to work out what time it was, the last strike was the chime of one-thirty.

4. RECURRING THEME
The numbers are all decimal expressions of fractions:
1/3, 1/6, 1/9, 1/12. The next number is ·066666666666 or 1/15.

5. FRNT PGE STRY
JACK SPRAT COLD EAT NO FAT
SAHARA CARAVAN ATTACK
ONASSIS AMASSES SENSELESS POSSESSIONS

6. MAN THE BOATS!
The answer to the sum is 505 — which is rather boring unless you do it on a calculator where it looks like SOS (Big deal, eh?)

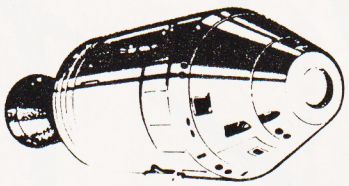


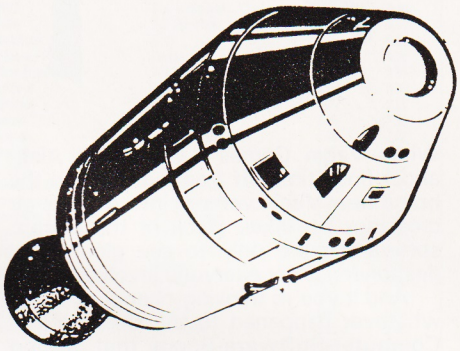
7. ONCE IS NOT ENOUGH
The first word has one anagram — once
the second, two — mars, arms
the third, three — team, tame, meat
the fourth, four — tens, nets, sten, nest
the fifth, five — opts, spot, stop, pots tops
There will be a small prize for anyone sending in a four letter word with six anagrams — preferably clean and English. And a marginally better prize for seven.

8. IS ANYBODY THERE?
The opposite of "Not in" is "In". You didn't really say "Out" did you?

9. POINTS OF ORDER
The numbers are the degrees in each angle of a series of polygons: triangle, square, pentagon, hexagon, heptagon, octagon. Just when you thought schooldays were over!

10. THE SPACEJOCK'S TRAP
It's really very simple isn't it? Mung declared that the last ship back would be the winner — the crews were irrelevant. The race became a real race after the crews decided to simply switch ships and try and beat their own star-race back.





11. MEN ONLY...
All the names of the scientists and inventors listed below can be found in the grid using the reference points:

A1	GUTENBERG
A6	BOYLE
F7	CURIE
D1	ARCHIMEDES
A5	NEWTON
G12	FARADAY
N3	DAGVERRE
F10	KELVIN
A6	BELL
A15	LEONARDO DA VINCI
B1	TSAI LUN
E11	GALILEO
F6	EUCLID
D11	WATT
L2	WRIGHT
N15	COPERNICUS
M2	FRANKLIN
J4	DAVY
H12	BABBAGE
N4	BAIRD
C13	EDISON
O1	ARISTOTLE
J2	VOLTA
K1	TESLA
B2	RENO
G6	RUTHERFORD
C12	DARWIN
L14	HENRY
L11	MACH
B6	OHM
L13	COLT
H4	MAREY
M11	FUNK
D10	NOBEL
A14	PASTEUR
H6	HOYLE
O13	MENDEL

The remaining letters spell: ALBERT EINSTEIN E EQUALS M C SQUARED

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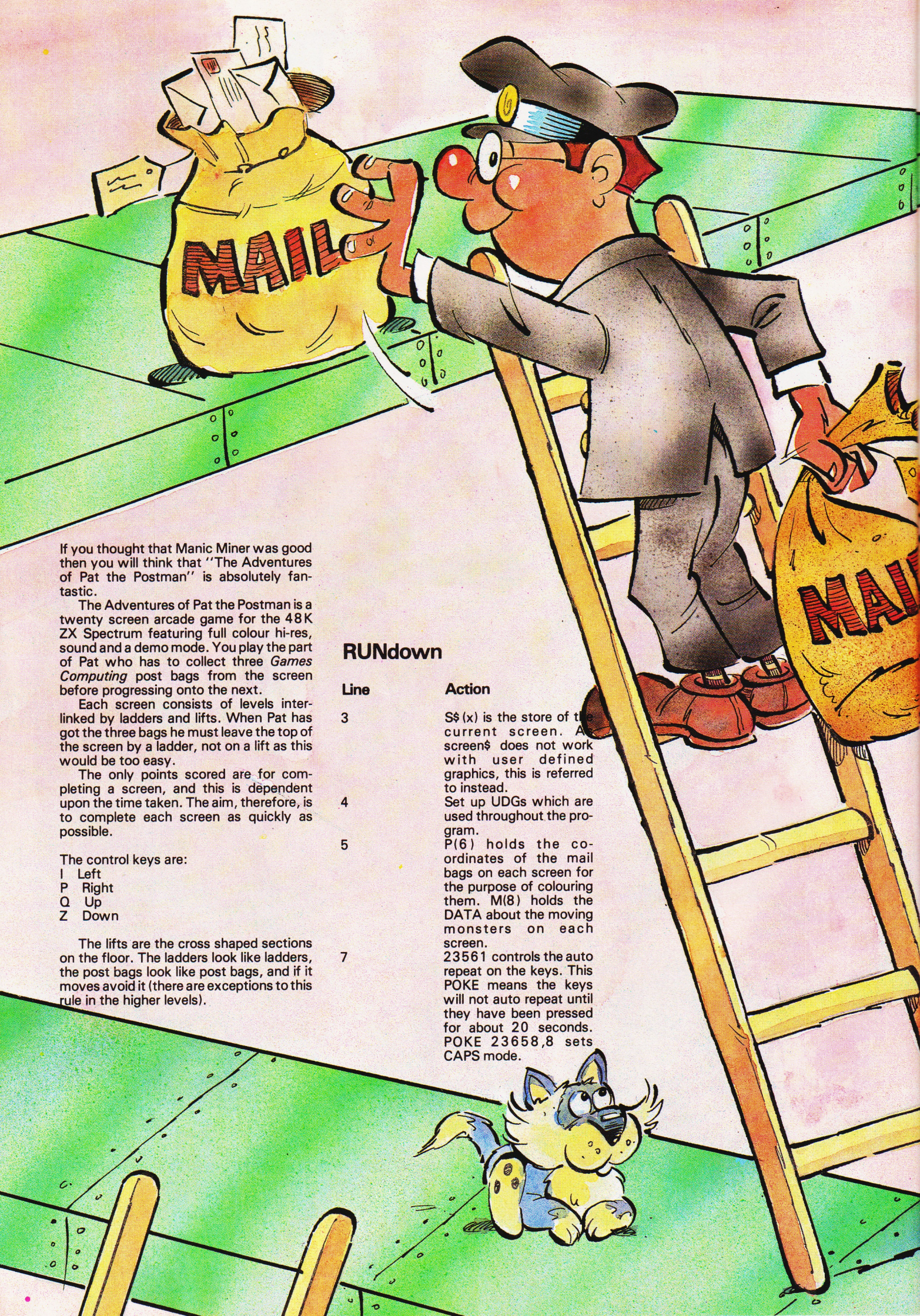


If you thought that Manic Miner was good then you will think that ''The Adventures of Pat the Postman'' is absolutely fantastic.

The Adventures of Pat the Postman is a twenty screen arcade game for the 48K ZX Spectrum featuring full colour hi-res, sound and a demo mode. You play the part of Pat who has to collect three *Games Computing* post bags from the screen before progressing onto the next.

Each screen consists of levels interlinked by ladders and lifts. When Pat has got the three bags he must leave the top of the screen by a ladder, not on a lift as this would be too easy.

The only points scored are for completing a screen, and this is dependent upon the time taken. The aim, therefore, is to complete each screen as quickly as possible.

The control keys are:
I Left
P Right
Q Up
Z Down

The lifts are the cross shaped sections on the floor. The ladders look like ladders, the post bags look like post bags, and if it moves avoid it (there are exceptions to this rule in the higher levels).

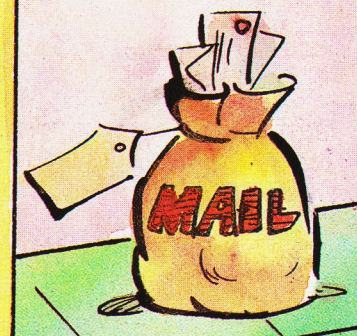
RUNdown

Line	Action
3	S$(x) is the store of the current screen. A screen$ does not work with user defined graphics, this is referred to instead.
4	Set up UDGs which are used throughout the program.
5	P(6) holds the co-ordinates of the mail bags on each screen for the purpose of colouring them. M(8) holds the DATA about the moving monsters on each screen.
7	23561 controls the auto repeat on the keys. This POKE means the keys will not auto repeat until they have been pressed for about 20 seconds. POKE 23658,8 sets CAPS mode.

RUNS ON SPECTRUM 48K

POSTMAN PAT

8-9	S(20) Contains a 1 for each screen which has a special feature. This is in fact for every screen but the special feature. This is in fact for every screen but the first.
10	Fn P(x) checks for the last key pressed. Fn M(x) was used during programming to check the spare memory but is not used during the program.
11-30	Initialize variables for pre-game screen displays and GOTO pre-game routine.
100-110	Initialize variables for beginning of game.
120-167	Initialize variables for beginning of screen.
410	Call screen set-up routine.
500-540	Print initial positions for monsters, Pat, postabgs etc.
610-690	Main loop.
610-640	Check keys and move accordingly.
650	Move monster for each screen, M(x) holds the number of the movement routine for that monster. There are 7 movement routines and room for 2 more.
655	Call routine for special feature of each screen, there are 19 such routines.
660	Checks for collision with moving monster.
670	Checks to see if Pat is moving on air!
675	Checks for collision with non-moving monster.
680	Checks to see if mail bag has been collected.
690	Checks whether screen is finished.
990	Loop.
1500-1550	CRASH!.
1540	If no lives left then end game.
2000-2050	Collect sack.
3000-3300	End screen routine.
3020-3270	Calculate bonus, display and calculate new score. The random beeps can be left out as they slow the game down.
3280	Next screen; if completed 20th screen then call congrats routine.
3295	Cancel last key pressed.
3300	Start new screen.
3500-3610	End game/Pre-game.
3505-3510	Colour the whole screen the same as the border.
3530	Pause.
3560-3610	Display screens in sequence. Done by simulating the game but without the postman, sacks etc.
3577	If a key is pressed then start the game.
4000-4953	Routines for special features.
5000-5040	Postman left.
5400	Up ladder.
5500-5550	Up lift routine.
5600-5650	Up lift routine.
5600-5650	Down ladder.
5700-5750	Down lift.
6000-6760	Move monster.
6100-6130	Left-right movement.
6200-6230	Up-down movement.
6300-6330	Random descent between limits.
6400-6430	Bouncing between limits.
6500-6570	Gradual homing in on Pat.
6600-6650	Bouncing around whole screen with decoy.
6700-6760	Following up and down ladders and lifts.
7000-7340	Draw screen routine.
7010	Chooses appropriate DATA.
7020	Sets up floor F and monster G graphics.
7025	On certain screens sets up graphics U.
7030-7040	Reed border and screen attributes.
7200	Sets up S$ (screen store).
7210	Prints screen.
7220	Sets up postbag positions.
7230	Reads monster DATA.
7235	Colours screen 20.
7240	Reads initial position of Pat.
7280-7340	Obvious.
7350-7998	Congratulations!
8000-9999	Data for screens and UDGs. the numbering of these lines is of utmost imortance and must be stuck to. The data for a particular screen can be located by the formula Line = 7900 + 100 * Screen.



ANDY ROBB

```
  0>REM BY GARY RITCHIE
  1 REM THE ADVENTURES OF PAT
  2 REM      THE POSTMAN
  3 DIM s$(16,32): REM screen  store
  4 RESTORE 9990: FOR f=0 TO 63: READ a: POKE USR "1"+f,a: NEXT f: FOR F=0 TO 1
5: READ A: POKE USR "A"+F,A: NEXT F
  5 DIM P(6): DIM M(8)
  7 POKE 23561,0: POKE 23658,8: RANDOMIZE
  8 DIM S(20)
  9 FOR F=1 TO 20: READ S(F): NEXT F
 10 DEF FN P()=PEEK 23560: DEF FN M()=(PEEK 23730+256*PEEK 23731)-(PEEK 23653+2
56*PEEK 23654)
 11 LET ME=2: LET DME=1: LET SS=0
 12 LET T$="F"
 20 DEF FN T()=PEEK 23672+256*PEEK 23673
 22 LET LAD=13: LET DLAD=-1
 25 LET ME8=9: LET DME8=1: LET FL=9
 26 LET EL=1
 27 LET FLO=1: LET DFLO=1
 28 LET ZAP=1
 30 LET SCORE=0: LET LIFE=3: LET LIFT=0: LET PODS=0: LET BONUS=1000: GO TO 3550
100 REM initialise variables etc
105 LET screen=1: LET score=0
110 LET LIFE=3
120 LET LIFT=0
130 LET PODS=0
140 LET BONUS=1000+(SCREEN-1)*100
150 POKE 23672,0: POKE 23673,0
161 LET ME8=9: LET DME8=1: LET ME=2: LET DME=1
162 LET FL=9
163 LET LAD=13: LET DLAD=-1
164 LET T$="F"
165 LET EL=1
166 LET FLO=1: LET DFLO=1
167 LET POD=1
400 REM NEARLY READY!
410 GO SUB 7000
500 REM play the game
510 PRINT AT X,Y; PAPER 8; INK 9;"O"
520 PRINT AT M(2),M(3); PAPER 8; INK M(8);"G"
530 FOR F=1 TO 6 STEP 2
531 LET INK=INT (RND*8)
535 IF INK=P THEN  GO TO 531
540 PRINT AT P(F),P(F+1); INK INK; PAPER 8;"N": NEXT F
600 REM REALLY START NOW!!!
610 IF FN P()=80 THEN  GO SUB 5000
620 IF FN P()=73 THEN  GO SUB 5200
630 IF FN P()=81 OR LIFT=1 THEN  GO SUB 5400
640 IF FN P()=90 OR LIFT=-1 THEN  GO SUB 5600
650 GO SUB 6000+100*M(1)
655 IF S(SCREEN) THEN  GO SUB 3950+50*SCREEN
660 IF (X=INT M(2) AND Y=INT M(3)) THEN  GO TO 1500
670 IF SCREEN$ (X+1,Y)=" " THEN  GO TO 1500
675 IF S$(X+1,Y+1)="G" THEN  GO TO 1500
680 IF S$(X+1,Y+1)="N" AND SCREEN<20 THEN  GO SUB 2000
690 IF X=8 AND S$(X+1,Y+1)="L" AND PODS=3 THEN  GO TO 3000
 990 GO TO 610
1500 FOR F=X TO 14
1510 FOR G=1 TO 3: BEEP .002,(21-F)*G: NEXT G
1520 PRINT  PAPER 8; INK I; BRIGHT 8;AT F,Y;S$(F+1,Y+1); INK 9;AT F+1,Y;"O"
1530 NEXT F
1540 LET LIFE=LIFE-1: IF LIFE<=0 THEN  GO TO 3500
1550 FOR F=1 TO 100: NEXT F: GO TO 120
2000 REM COLLECT POD
2010 BEEP .01,10: BEEP .01,20: BEEP .01,5: BEEP .01,30: BEEP .01,20
2020 LET PODS=PODS+1
2025 LET S$(X+1,Y+1)=" "
2027 LET INK=INT (RND*8): IF INK=(PEEK 23624)/8 THEN  GO TO 2027
2030 PRINT  INK INK;AT 18,20+2*PODS;"N"
2050 RETURN
3000 REM FINISHED SCREEN
3005 IF S$(X+1,Y+1)<>"L" THEN  RETURN
3010 IF PODS<3 THEN  RETURN
3015 PRINT  FLASH 1;AT X,Y; PAPER 8; INK 8;"O"
3020 FOR F=1 TO 20: FOR G=1 TO 3
3030 BEEP .01,F*G: NEXT G: NEXT F
3035 PRINT AT X,Y; PAPER P; INK I;S$(X+1,Y+1)
3190 IF SCREEN>16 THEN  FOR F=1 TO 2
3200 LET BONUS=BONUS-INT FN T()/50*5
3205 LET BONUS=(INT (BONUS/10))*10
3207 IF SGN BONUS=-1 THEN  LET BONUS=0
3209 IF SCREEN>16 THEN  NEXT F
3210 PRINT  FLASH 1;AT 20,6;BONUS; FLASH0;" "
3215 FOR F=1 TO 50: BEEP .005,INT (RND*30)+30: NEXT F
3220 FOR F=BONUS TO 0 STEP -10
3230 PRINT AT 20,6;F;" "
3240 PRINT AT 18,6;SCORE+(BONUS-F);" "
3250 BEEP .01,F/40
3260 NEXT F
3270 LET SC=SCORE: LET SCORE=SCORE+BONUS: IF INT (SCORE/10000)*10000>INT (SC/100
00)*10000 AND LIFE<6 THEN  LET LIFE=LIFE+1
3280 LET SCREEN=SCREEN+1: IF SCREEN=21 THEN  LET SCREEN=1: GO SUB 7350
3290 FOR F=1 TO 50: BEEP .005,INT (RND*40): NEXT F
3295 POKE 23560,32
3300 GO TO 120
3500 REM END GAME
3505 LET ATT=ATTR (16,0): LET ATT=ATT-(ATT>128)*128
3506 LET ATT=ATT-(ATT>64)*64
3507 LET PA=INT (ATT/8): LET IN=ATT-8*INT (ATT/8)
3510 FOR F=0 TO 15: PRINT AT F,0; PAPER PA; INK IN; OVER 1;"
          ": NEXT F
3530 FOR F=1 TO 500: NEXT F
3560 FOR Z=1 TO 20
3565 LET SCREEN=Z
3570 GO SUB 7000
3573 PRINT AT 16,5; FLASH 1;"PRESS ANY KEY TO PLAY"
3575 FOR Q=1 TO 50
3577 IF INKEY$<>"" THEN  GO TO 100
3580 GO SUB 6000+100*M(1)
3585 IF S(SCREEN) THEN  GO SUB 3950+50*SCREEN
3590 NEXT Q
3600 NEXT Z
3610 GO TO 3560
3949 STOP
3950 REM SPECIAL SCREENS HERE
4050 PRINT AT ME,27; PAPER P; INK I;S$(ME+1,28 TO )
4055 IF Y>26 AND X=ME-1 THEN  PRINT AT X,Y; PAPER P; INK I;" ": LET X=X+DME: PRI
NT AT X,Y; PAPER P; INK 9;"O"
4060 LET ME=ME+DME
4070 IF ME>=13 OR ME<=1 THEN  LET DME=-DME
4080 PRINT AT ME,27; PAPER P; INK 4; BRIGHT 1;"FFFFF": RETURN
4100 IF S$(X+1,Y+1)<>"P" THEN  RETURN
4110 PRINT AT X,Y; PAPER P; INK I;S$(X+1,Y+1)
4115 PRINT AT 16,10; FLASH 1;"TELEPORTING!"
4120 FOR F=1 TO 30 STEP .5: FOR G=1 TO 2
4130 BEEP .002,F*G: NEXT G: NEXT F
4132 IF X=3 AND Y=0 THEN  LET X=9: LET Y=9: GO TO 4140
4134 IF X=9 AND Y=9 THEN  LET X=3: LET Y=0: GO TO 4140
4140 PRINT AT X,Y; PAPER P; INK 9;"O"
4145 PRINT AT 16,10;"              ": RETURN
4150 IF X<>2 OR Y<>31 THEN  RETURN
4152 IF S$(3,31)=" " THEN  RETURN
4155 PRINT AT X,Y; FLASH 1; PAPER P; INK I;"O"
4160 PRINT AT 16,5;"YOU'VE RESCUED THE DAMSEL!": FOR F=1 TO 200
4165 BEEP .01,INT (RND*20)+10: NEXT F
4170 LET S$(3,27 TO )="      ": PRINT AT 2,26; PAPER P; INK I;"      O"
4180 LET BONUS=BONUS+INT ((RND*5)+1)*200: PRINT AT 20,6;BONUS
4190 RETURN
4200 IF X<>8 OR Y<>24 THEN  RETURN
4202 IF S$(9,25)<>"O" THEN  RETURN
4203 LET S$(9,25)=" "
4205 FOR F=8 TO 1 STEP -1
4210 PRINT AT F,24; INK 2; PAPER P;"O"; INK 1;AT F+1,24;S$(F+2,25)
4215 FOR G=0 TO 3: BEEP .002,(21-F)*G: NEXT G: GO SUB 6200
4220 NEXT F
4225 LET X=1: LET Y=24: PRINT AT X,Y; INK 9; PAPER P;"O"
4227 POKE 23560,32
4230 RETURN
4250 IF S$(X+1,Y+1)<>"U" THEN  RETURN
4270 LET S$(X+1,Y+1)=" ": LET SCORE=SCORE-50
4271 PRINT AT 18,6;SCORE
4272 PRINT AT 16,8;"YOU'VE BEEN PRICKED!": FOR F=10 TO 20: BEEP .002,F: NEXT F:
PRINT AT 16,8;"                "
4275 RETURN
4300 IF RND>.075 THEN  RETURN
4310 IF S$(4,6)=" " THEN  GO TO 4330
4315 PRINT AT 3,5; PAPER P; INK I;"  ": LET S$(4,6 TO 8)="   "
4320 PRINT AT 6,10; PAPER P; INK 2;"FF": LET S$(7,11 TO 12)="FF"
4325 BEEP .1,20: RETURN
4330 PRINT AT 3,5; PAPER P; INK 2;"FFF": LET S$(4,6 TO 8)="FFF"
4335 PRINT AT 6,10; PAPER P; INK I;"  ": LET S$(7,11 TO 12)="  "
4340 BEEP .1,20: RETURN
4350 PRINT  PAPER P; INK I;AT ME8,18;S$(ME8+1,19 TO 23);AT ME8+4,18;S$(ME8+5,19
TO 23)
4353 IF Y>17 AN Y<23 AND (X=ME8-1 OR X=ME8+3) THEN  PRINT AT X,Y; PAPER P; INK I
;" ": LET X=X+DME8: PRINT AT X,Y; PAPER P; INK 9;"O"
4355 LET ME8=ME8+DME8: IF ME8=11 OR ME8=7 THEN  LET DME8=-DME8
4360 PRINT  PAPER P; INK 2;AT ME8,18;"FFFFF";AT ME8+4,18;"FFFFF"
4370 RETURN
4409 LET Z$=S$(4,11)
4410 LET S$(4,11 TO 19)=S$(4,12 TO 20)
4420 LET S$(4,20)=Z$: PRINT AT 3,10; PAPER P; INK I;S$(4,11 TO 20)
4430 IF X=3 THEN  PRINT AT X,Y; PAPER P; INK 9;"O"
4431 IF S$(X+1,Y+1)<>"*" THEN  RETURN
4432 LET S$(X+1,Y+1)=" "
4433 LET S$(4,1)=" ": PRINT AT 3,0; PAPER P; INK I;" "
4434 LET SCORE=SCORE+100: PRINT AT 18,6;SCORE
4435 BEEP .01,20: BEEP .01,30: BEEP .01,10: RETURN
4440 RETURN
4450 LET Z$=S$(9,29): LET S$(9,12 TO 30)=Z$+S$(9,12 TO 28)
4460 PRINT AT 8,11; PAPER P; INK I;S$(9,12 TO 29)
4470 IF X=8 THEN  PRINT AT X,Y; PAPER P; INK 9;"O"
4480 RETURN
4500 IF RND>.05 THEN  RETURN
4510 LET S$(FL+1,7 TO 10)="    ": PRINT  PAPER P; INK I;AT FL,6;"    "
4520 LET FL=(INT (RND*3)*3)+6
4530 LET S$(FL+1,7 TO 10)="FFFF": PRINT  PAPER P; INK I;AT FL,6;"FFFF"
4540 BEEP .01,40: RETURN
4550 LET Z$=S$(10,4 TO 13)
4560 LET S$(T0,4 TO 13)=S$(10,5 TO 13)+Z$
4570 PRINT AT 9,3; PAPER P; INK I;S$(10,4 TO 13)
4575 IF X=9 THEN  PRINT AT X,Y; PAPER P; INK 9;"O"
4580 RETURN
4600 IF NOT DLAD THEN  GO TO 4620
4605 LET S$(LAD+1,28)="L" AND DLAD=-1)+(" " AND DLAD=1): PRINT AT LAD,27; PAPER
 P; INK I;("L" AND DLAD=-1)+(" " AND DLAD=1)
4610 LET LAD=LAD+DLAD: IF LAD=0 OR LAD=14 THEN  LET DLAD=-DLAD
4620 IF S$(X+1,Y+1)<>"A" AND S$(X+1,Y+1)<>"B" THEN  RETURN
4621 IF S$(X+1,Y+1)="B" THEN  GO TO 4635
4622 IF NOT DLAD THEN  RETURN
4623 LET S$(X+1,Y+1)="B": PRINT AT X,Y; PAPER P; INK I;"B"
4624 LET TDL=DLAD: LET DLAD=0
4625 BEEP .01,20: BEEP .01,30: BEEP .01,10: BEEP .01,20: RETURN
4635 IF DLAD THEN  RETURN
4636 LET S$(X+1,Y+1)="A": PRINT AT X,Y; PAPER P; INK I;"A"
4637 LET DLAD=TDL
4640 BEEP .01,20: BEEP .01,30: BEEP .01,10: BEEP .01,20: RETURN
4650 IF ATTR (2,11)=7 THEN  GO TO 4675
4653 IF X=3 AND (Y=11 OR Y=20) THEN  GO TO 4690
4655 IF RND>.05 THEN  RETURN
4660 IF ATTR (2,11)=103 THEN  GO TO 4675
4665 PRINT AT 2,11; OVER 1; INK I; PAPER 4; BRIGHT 1;" ";AT 2,20;" "
4666 BEEP .1,30
4670 RETURN
4675 PRINT AT 2,11; OVER 1; INK I; PAPER 2; BRIGHT 1;" ";AT 2,20;" "
4676 BEEP .1,20
4679 RETURN
4690 IF ATTR (2,11)=103 THEN  RETURN
4695 LET SCORE=SCORE-500: PRINT AT 18,6;SCORE: RETURN
4700 LET Z$=S$(5,29): LET S$(5,22 TO 29)=Z$+S$(5,22 TO 28)
4710 PRINT  PAPER P; INK I;AT 4,21;S$(5,22 TO 29)
4737 IF S$(X+1,Y+1)<>"A" THEN  GO TO 4740
4738 LET S$(X+1,Y1)="B": PRINT  PAPER P; INK I;AT X,Y;"B": BEEP .1,0
4739 LET S$(8,16 TO 17)="  ": PRINT  PAPER P; INK I;AT 7,15;"  ": RETURN
4740 IF S$(X+1,Y+1)<>"U" THEN  RETURN
4741 IF FN P()=80 THEN  GO SUB 5200: POKE 23560,32: RETURN
4742 IF FN P()=73 THEN  GO SUB 5000: POKE 23560,32: RETURN
4743 RETURN
4750 LET Z$=S$(12,31): LET S$(12,2 TO 31)=Z$+S$(12,2 TO 30)
4760 PRINT AT 11,1; PAPER P; INK 6;S$(12,2 TO 31)
4761 IF X=11 THEN  PRINT AT X,Y; PAPER P; INK 9;"O"
4762 RETURN
4800 IF RND>.075 THEN  GO TO 4810
4801 BEEP .002,40
4802 LET YL=INT (RND*10)+11
4803 FOR F=0 TO 14: PRINT AT F,YL; BRIGHT 1; OVER 1; PAPER 6; INK 8;" ": NEXT F
4805 FOR F=0 TO 14: PRINT AT F,YL; OVER 1; PAPER P; INK 8;" ": NEXT F
4806 IF Y=YL THEN  PRINT AT X+1,Y; PAPER P; INK I;" "
4810 IF S$(X+1,Y+1)<>"U" THEN  RETURN
4820 PRINT AT 16,4; FLASH 1;"YOU'VE BANGED YOUR HEAD!"
4830 FOR F=1 TO 100: NEXT F: PRINT AT 16,0;"                "
4840 LET SCORE=SCORE-100: PRINT AT 18,6;SCORE: RETURN
4850 IF ATTR (10,1)<>112 AND EL THEN  GO TO 4899
4860 IF ATTR (X+1,Y)=112 THEN  PRINT AT X+1,Y; BRIGHT 1; PAPER P; INK I;" ": RET
URN
4865 IF S$(X+1,Y+1)<>"A" AND S$(X+1,Y+1)<>"B" THEN  RETURN
4867 BEEP .01,50
4870 IF S$(X+1,Y+1)="A" THEN  LET S$(X+1,Y+1)="B": PRINT AT X,Y; INK I; PAPER P;
"B": LET EL=NOT EL: GO TO 4899
4880 IF S$(X+1,Y+1)="B" THEN  LET S$(X+1,Y+1)="A": PRINT AT X,Y; INK I; PAPER P;
"A": LET EL=NOT EL: GO TO 4899
4899 PRINT  BRIGHT EL; OVER 1; PAPER 8; INK 8;AT 10,1;"                ";AT 3,
15;"  ";AT 8,6; BRIGHT NOT EL;"  ": RETURN
4900 PRINT AT ME,13; PAPER P; INK I;S$(ME+1,14 TO 19)
4905 IF Y>12 AND Y<19 AND X=ME-1 THEN  PRINT AT X,Y; PAPER P; INK I;S$(X+1,Y+1):
 LET X=X+DME: PRINT AT X,Y; PAPER P; INK 9;"O"
4910 LET ME=ME+DME
4915 IF ME>=15 OR ME<=2 THEN  LET DME=-DME
4920 PRINT AT ME,13; PAPER P; INK 1;"FFFFFF": RETURN
4950 IF S$(X+1,Y+1)<>"N" THEN  RETURN
4951 IF X<>P(POD) OR Y<>P(POD+1) THEN  RETURN
4952 GO SUB 2000
4953 LET POD=POD+2: RETURN
5000 IF LIFT THEN  RETURN
5005 IF Y=31 THEN  RETURN
5010 PRINT AT X,Y; PAPER 8; INK I;S$(X+1,Y+1)
5020 LET Y=Y+1
5030 PRINT AT X,Y; PAPER 8; INK 9;"O": BEEP .002,(21-X)*2
5040 RETURN
5200 IF LIFT THEN  RETURN
5205 IF Y=0 THEN  RETURN
5210 PRINT AT X,Y; PAPER 8; INK I;S$(X+1,Y+1)
5220 LET Y=Y-1
5230 PRINT AT X,Y; PAPER 8; INK 9;"O": BEEP .002,(21-X)*2
5240 RETURN
5400 IF S$(X+1,Y+1)<>"L" AND S$(X+2,Y+1)<>"M" THEN  RETURN
5410 IF X=0 THEN  RETURN
5420 IF S$(X+2,Y+1)="M" THEN  GO TO 5500
5430 PRINT AT X,Y; PAPER 8; INK I;"L": LET X=X-1
5440 PRINT AT X,Y; PAPER 8; INK 9;"O": BEEP .002,(21-X)*2
5450 RETURN
5500 IF LIFT=-1 AND X<>14 THEN  RETURN
5505 LET LIFT=1
5510 LET S$(X+2,Y+1)=T$: LET T$=S$(X+1,Y+1): LET S$(X+1,Y+1)="M"
5520 PRINT AT X,Y; PAPER 8; INK I;"M";AT X+1,Y;S$(X+2,Y+1): LET X=X-1
5530 PRINT AT X,Y; PAPER 8; INK 9;"O"
5533 BEEP .002,(21-X)*2
5535 IF Y=0 OR Y=31 THEN  GO TO 5560
5540 IF S$(X+2,Y)="F" OR S$(X+2,Y+2)="F" THEN  LET LIFT=0: POKE 23560,32
5550 RETURN
5560 IF =0 THEN  IF S$(X+2,Y+2)="F" THEN  LET LIFT=0: POKE 23560,32: RETURN
5570 IF Y=31 THEN  IF S$(X+2,Y)="F" THEN  LET LIFT=0: POKE 23560,32: RETURN
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RUNS ON SPECTRUM 48K

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5580 RETURN
5600 IF S$(X+2,Y+1)<>"L" AND S$(X+2,Y+1)<>"M" THEN  RETURN
5610 IF X=14 THEN  RETURN
5620 IF S$(X+2,Y+1)="M" THEN  GO TO 5700
5630 PRINT AT X,Y; PAPER 8; INK I;S$(X+1,Y+1)
5640 LET X=X+1: PRINT AT X,Y; PAPER 8; INK 9;"O"
5645 BEEP .002,(21-X)*2
5650 RETURN
5700 IF LIFT=1 AND X<>0 THEN  RETURN
5705 LET LIFT=-1
5710 LET S$(X+2,Y+1)=T$: LET T$=S$(X+3,Y+1): LET S$(X+3,Y+1)="M"
5720 PRINT AT X,Y; PAPER 8; INK I;S$(X+1,Y+1): LET X=X+1
5730 PRINT AT X,Y; PAPER 8; INK 9;"O"; INK I;AT X+1,Y; INK I;"M"
5733 BEEP .002,(21-X)*2
5735 IF Y=0 OR Y=31 THEN  GO TO 5760
5740 IF S$(X+2,Y)="F" OR S$(X+2,Y+2)="F" THEN  LET LIFT=0: POKE 23560,32
5750 RETURN
5760 IF Y=0 THEN  IF S$(X+2,Y+2)="F" THEN  LET LIFT=0: POKE 23560,32: RETURN
5770 IF Y=31 THEN  IF S$(X+2,Y)="F" THEN  LET LIFT=0: POKE 23560,32: RETURN
5780 RETURN
6000 RETURN
6100 PRINT AT INT M(2),INT M(3); INK I; PAPER P;S$(INT M(2)+1,INT M(3)+1)
6110 LET M(3)=M(3)+M(7): IF M(3)=M(4) OR M(3)=M(5) THEN  LET M(7)=-M(7)
6120 PRINT  INK M(8); PAPER 8;AT INT M(2),INT M(3);"G"
6130 RETURN
6200 PRINT AT INT M(2),INT M(3); INK I; PAPER P;S$(INT M(2)+1,INT M(3)+1)
6210 LET M(2)=M(2)+M(6): IF M(2)=M(4) OR M(2)=M(5) THEN  LET M(6)=-M(6)
6220 PRINT  INK M(8); PAPER 8;AT INT M(2),INT M(3);"G"
6230 RETURN
6300 PRINT AT M(2),M(3); INK I; PAPER P;S$(M(2)+1,M(3)+1)
6310 LET M(2)=M(2)+M(6): IF M(2)>=15 THEN  LET M(2)=0: LET M(3)=INT (RND*(M(5)-M
(4)+1))+M(4)
6320 PRINT AT M(2),M(3); INK M(8); PAPER P;"G"
6330 RETURN
6400 PRINT AT M(2),M(3); INK I; PAPER P;S$(M(2)+1,M(3)+1)
6410 LET M(2)=M(2)+M(6): LET M(3)=M(3)+M(7)
6415 PRINT  PAPER P; INK M(8);AT M(2),M(3);"G"
6420 IF M(3)=15+M(5) OR M(3)=16-M(5) THEN  LET M(7)=-M(7)
6425 IF M(2)=7+M(4) OR M(2)=8-M(4) THEN  LET M(6)=-M(6)
6430 RETURN
6500 IF RND>.3 THEN  GO TO 6550
6510 PRINT  PAPER P; INK I;AT M(2),M(3);S$(M(2)+1,M(3)+1)
6520 LET DM1=SGN (X-M(2)): LET DM2=SGN (Y-M(3))
6530 LET M(2)=M(2)+DM1: LET M(3)=M(3)+DM2
6540 PRINT  PAPER P; INK M(8);AT M(2),M(3);"G": RETURN
6550 IF M(2)=0 OR M(3)=0 OR M(2)=14 OR M(3)=31 THEN  RETURN
6555 PRINT  PAPER P; INK I;AT M(2),M(3);S$(M(2)+1,M(3)+1)
6560 LET M(2)=M(2)+INT (RND*2): LET M(3)=M(3)+INT (RND*2)
6570 PRINT  PAPER P; INK M(8);AT M(2),M(3);"G": RETURN
6600 PRINT AT M(2),M(3); INK I; PAPER P;S$(M(2)+1,M(3)+1);AT 15-M(2),31-M(3);S$(
16-M(2),32-M(3))
6610 LET M(2)=M(2)+M(6): LET M(3)=M(3)+M(7)
6620 IF M(2)=1 OR M(2)=14 THEN  LET M(6)=-M(6)
6630 IF M(3)=0 OR M(3)=31 THEN  LET M(7)=-M(7)
6640 PRINT AT M(2),M(3); INK M(8); PAPER P;"G";AT 15-M(2),31-M(3); INK 7-M(8);"G
"
6650 RETURN
6710 IF M(4) THEN  GO TO 6750
6720 IF FN P()<>81 AND FN P()<>90 AND NOT LIFT THEN  RETURN
6725 IF X>12 OR X<2 THEN  RETURN
6730 LET M(3)=Y: LET M(2)=(15 AND FN P()=81): LET M(4)=1
6740 LET M(7)=(-2 AND M(2)=15)+1
6750 PRINT AT M(2),M(3); BRIGHT 8; PAPER P; INK I;S$(M(2)+1,M(3)+1)
6752 LET M(2)=M(2)+M(7): IF M(2)=0 OR M(2)=15 THEN  LET M(4)=0: RETURN
6753 PRINT AT M(2),M(3); PAPER P; INK M(8); BRIGHT 8;"G"
6760 RETURN
7000 REM SET UP SCREEN FROM APPROPRIATE DATA
7010 RESTORE (7900+100*screen)
7020 FOR f=0 TO 15: READ po: POKE USR "f"+f,po: NEXT f: REM floor section
7025 IF SCREEN=17 OR SCREEN=15 OR SCREEN=6 OR SCREEN=12 OR SCREEN=14 THEN  FOR F
=2 TO 7: READ A: POKE USR "U"+F,A: NEXT F
7030 READ p,i,b: PAPER p: INK i: BORDER b: BRIGHT 0: CLS
7040 READ P,I
7200 FOR F=0 TO 15: READ S$(F+1): NEXT F
7210 FOR F=0 TO 15: PRINT AT F,0; PAPER P; INK I;S$(F+1): NEXT F
7220 FOR F=1 TO 6: READ P(F): NEXT F
7230 FOR F=1 TO 8: READ M(F): NEXT F
7235 IF SCREEN=20 THEN  FOR F=1 TO 14: PRINT  INK 8; PAPER 6; OVER 1;AT F,1;"
     ";AT F,22; PAPER 2;"          ": NEXT F
7240 READ X,Y
7280 PRINT AT 18,0;"SCORE=";SCORE,"SACKS "
7300 PRINT AT 20,0;"BONUS=";BONUS,"LIVES ";
7310 FOR F=1 TO LIFE-1
7320 LET INK=INT (RND*8): IF INK=(PEEK 23624)/8 THEN  GO TO 7320
7330 PRINT  INK INK;"O ";: NEXT F
7340 RETURN
7350 FOR F=1 TO 50: NEXT F: PAPER 1: BORDER 1: INK 7: BRIGHT 0: CLS
7360 LET A$=                    "
                                                                    "
7370 PRINT AT 5,3;A$
7380 PRINT AT 9,3;"YOU'VE REACHED THE SORTING"'"OFFICE....."'''
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7385 FOR F=1 TO 100: NEXT F
7390 PRINT ".....BUT CAN YOU DO IT AGAIN?"
7400 FOR F=1 TO 100: NEXT F
7998 RETURN
7999 REM screen data from hereon
8000 REM  DATA SCREEN 1
8001 DATA 255,136,255,34,255,136,255,34
8002 DATA 0,24,52,60,24,52,74,149
8003 DATA 0,6,0,2,6
8010 DATA "          L                   L          "
8015 DATA "                              L         N"
8020 DAA "FL    LFFFF              LFFFF    LF"
8025 DATA " L   L                  L        L "
8030 DATA " L   L        G         L        L "
8035 DATA " FFFFFL     LFFFL    L   LFFLFF  "
8040 DATA "     L      L N L    L   L  L    "
8045 DATA "     L FFLFFFFFFFL FFLFF  L    "
8050 DATA " N   L   L          L   L  L    "
8055 DATA " FFLFFL  L          L   L  L    "
8060 DATA "   L L   L    LFFFF  L   L  L    "
8065 DATA "   L  FFFFF   L      L  FFLFFF"
8070 DATA "  L              L      L   L    "
8075 DATA "   L             L      L   L    "
8080 DATA "   L             L      L   L    "
8085 DATA "FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF"
8090 DATA 1,31,6,14,8,1
8095 DATA 1,6,8,8,19,0,1,0
8096 DATA 14,30
8100 REM  DATA FOR SCREEN 2
8101 DATA 255,85,170,85,170,85,170,255
8102 DATA 60,126,90,126,60,36,60,24
8103 DATA 4,0,4,1,6
8110 DATA "          L                      N"
8115 DATA "    G     L                NG    "
8120 DATA "    FLFFFFFFFFFFFF  FFFFFF    "
8125 DATA "     L                          "
8130 DATA "LFFFFF                          "
8135 DATA "L                               "
8140 DATA "L        N                      "
8145 DATA "FFFFFFFFFFFFFFM                 "
8150 DATA "                                "
8155 DATA "G                  MFFMFFFFF    "
8160 DATA "L                               "
8165 DATA "L                               "
8170 DATA "L                               "
8175 DATA "FFFFL      FLFL       LFFFF     "
8180 DATA "   L     L L        L          "
8185 DATA "FFFFFFFFFFFFF FFFFFFFFFFFFFFFFFF"
8190 DATA 0,31,6,8,1,25
8195 DATA 1,12,11,11,14,0,1,2
8196 DATA 12,1
8200 REM  DATA  FOR SCREEN 3
8201 DATA 255,255,122,48,32,0,0,0
8202 DATA 24,36,24,90,189,153,165,129
8203 DATA 3,0,3,0,6
8210 DATA "  L                     L       "
8215 DATA "    N                   L       "
8220 DATA "  LFFF                  L       "
8225 DATA "P L G                   L     MFFF"
8230 DATA "FFFFF              NG    L       "
8235 DATA "                FFFFFLFFF         "
8240 DATA "                   GL            "
8245 DATA "                  LFL            "
8250 DATA "                  L L            "
8255 DATA "    G    P        L L  MFFLFF    "
8260 DATA "    FFFLFF        L L     L      "
8265 DATA "          L     FFMFFL L    L     "
8270 DATA "          L        L L    L     "
8275 DATA "          L        LFL    L     "
8280 DATA "          L        L L    L    N"
8285 DATA "FFFFFFFFFFFFFFFFFF FFFFFFFFFF"
8290 DATA 1,5,14,31,4,16
8295 DATA 2,14,19,14,8,-2,0,4
8296 DATA 2,30
8300 REM  DATA  FOR SCREEN 4
8301 DATA 255,255,231,195,195,231,255,255
8302 DATA 60,78,159,191,255,255,126,60
8303 DATA 5,1,5,7,1
8310 DATA "          L                     "
8315 DATA "          L                     "
8320 DATA "FFFL      L          N G    HELP!D"
8325 DATA "   L    LFFFFF      FFF      FFFF"
8330 DATA "   L    L  L                    "
8335 DATA "   L    L  L                    "
8340 DATA "   L  GNL                       "
8345 DATA "FFFFMFFFF                       "
8350 DATA "                  FFLMFFFFFFFLFFM"
8355 DATA "                    L       L   "
8360 DATA "                    L     N L   "
8365 DATA "          LFFMF    L      LFFFFFF"
8370 DATA "  LFFFL   L        L      L     "
8375 DATA "  L   L   L        L      L     "
8380 DATA "  L   L   L        L      L     "
8385 DATA "FFF   FFFFFFFFFFFFFFFFFFFFFFFFF"
8390 DATA 6,7,10,26,2,19
8395 DATA 1,10,4,4,28,0,3,2
8396 DATA 1,1
8400 REM  DATA FOR SCREEN 5
8401 DATA 255,127,62,28,8,255,0,0
8402 DATA 60,66,129,141,159,159,78,60
8403 DATA 2,7,2,5,0
8410 DATA " L                              "
8415 DATA " L                              "
8420 DATA " L                  FLFFFFFF    "
8425 DATA " L G G N            L       LFF"
8430 DATA " FFFFFF             L    GN L   "
8435 DATA "                FLFFFFFFFFFFFFF "
8440 DATA "                    L           "
8445 DATA "   MFLFM            L           "
8450 DATA "     L          N L       0     "
8455 DATA "     L          FFFFM    FFLFF  "
8460 DATA "     L                   L      "
8465 DATA "     L                   L      "
8470 DATA "     L                   L      "
8475 DATA "FFFFLFFFFFFFFFFFFFFF L          "
8480 DATA "                         L      "
8485 DATA "FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFM"
8490 DATA 3,7,4,26,8,13
8495 DATA 2,8,15,0,14,2,0,1
8496 DATA 14,0
8500 REM  DATA  FOR SCREEN 6
8501 DATA 255,255,255,255,253,249,114,60
8502 DATA 126,129,165,129,165,153,129,126
8503 DATA 3,3,4,8,16,32,64,0
8504 DATA 5,1,5,6,1
8510 DATA "     L                        "
8515 DATA "     L U G                   U"
8520 DATA "FFMFFFFFFLF                LFFFLF"
8525 DATA "         L                 L   L "
8530 DATA "         L                 L   L "
8535 DATA "       UL     LFFFL       L   L "
8540 DATA " FFL  FLFFF    L U   N    L   L "
8545 DATA "   L   L      LFFFFFFFFFFFF  L "
8550 DATA "  NL U L      L F            L "
8555 DATA "  FLMF L      L              UL "
8560 DATA "       L      L              MF "
8565 DATA "       L      FFFFFLF          "
8570 DATA "       L             L         "
8575 DATA "       L             L   FMFFFL "
8580 DATA "       L             L      L N "
8585 DATA "FFFFFFFFFFFFFFFFFFFF        FFFF"
8590 DATA 8,2,6,21,14,30
8595 DATA 2,10,16,10,9,-1,0,3
8596 DATA 1,1
8600 REM  DATA FOR SCREEN 7
8601 DATA 255,8,8,28,62,62,62,28
8602 DATA 126,153,153,126,36,82,137,133
8603 DATA 1,7,1,4,0
8610 DATA "          L                     "
8615 DATA "          L                     "
8620 DATA "   GN     L                  G  N"
8625 DATA "  LFFFFFFFFFFFF           FFFFFFF"
8630 DATA "  L          L                   "
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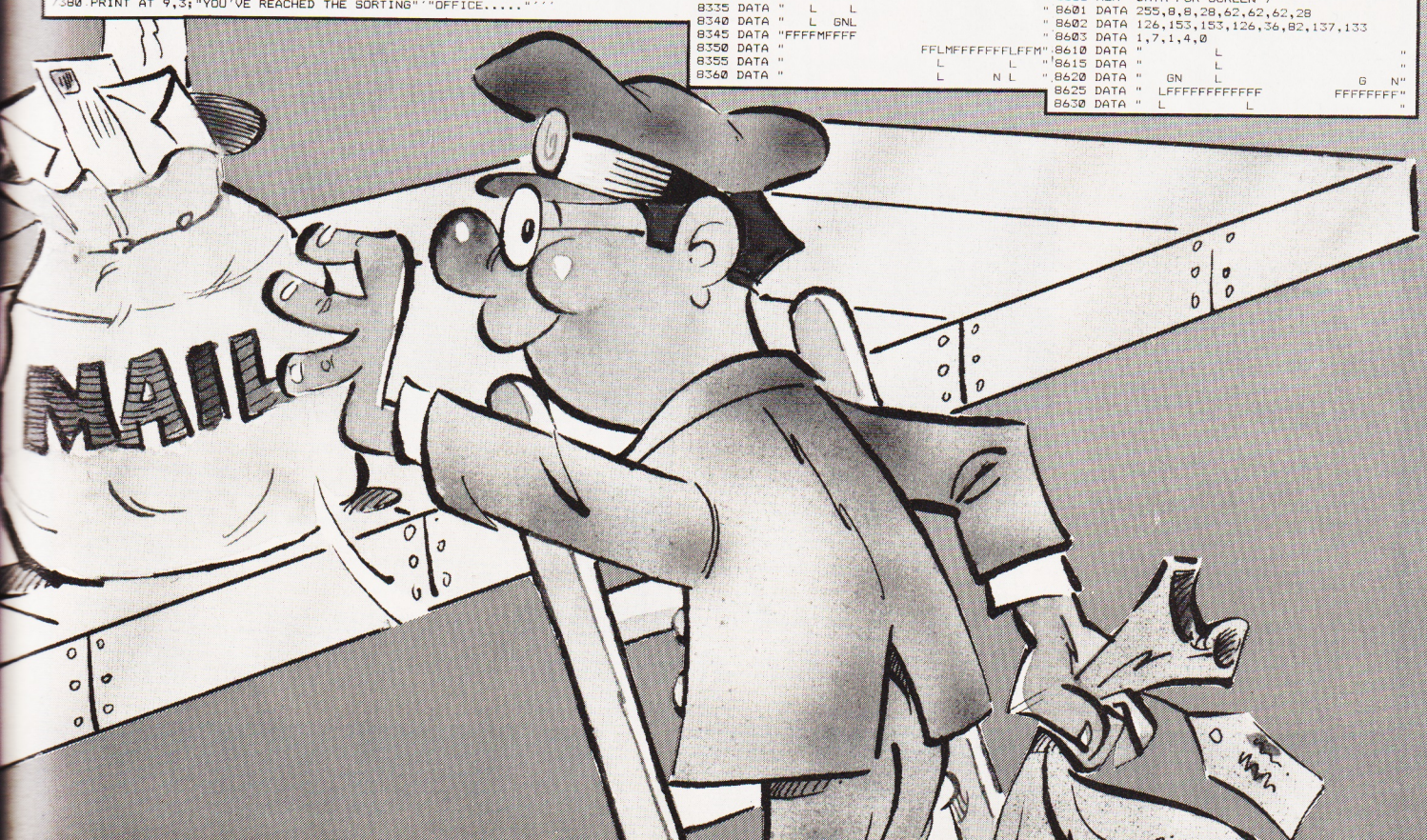

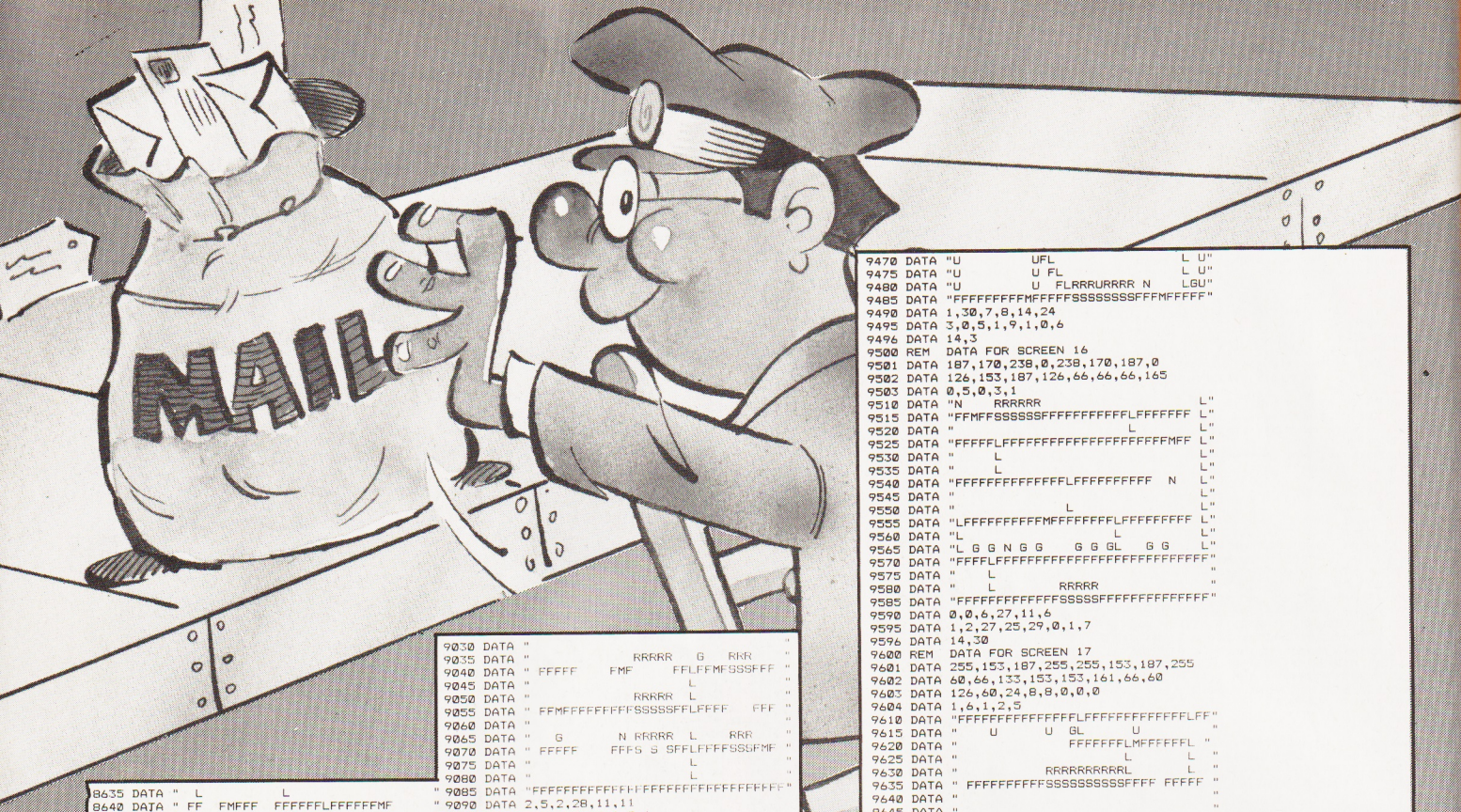


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8635 DATA "  L             L                  "
8640 DATA " FF  FMFFF   FFFFFFLFFFFFFMF       "
8645 DATA "             FLFFFFFF              "
8650 DATA "             FFFFFFLF        LFMF  "
8655 DATA "             FLFFFFFF        L     "
8660 DATA "             FFFFFFFL        L     "
8665 DATA "                       L  G   L  N "
8670 DATA " MFFLFFF              LFFFFFFFFFFF "
8675 DATA "    L                 L            "
8680 DATA "    L                 LG           "
8685 DATA "FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF"
8690 DATA 2,4,2,31,11,30
8695 DATA 4,9,15,2,4,-1,1,2
8696 DATA 14,1
8700 REM  DATA FOR SCREEN 8
8701 DATA 255,128,65,34,20,8,255,0
8702 DATA 24,24,60,231,231,60,24,24
8703 DATA 6,1,6,0,5
8710 DATA "          L                       "
8715 DATA "LF        L G                     "
8720 DATA "L         FFF                     "
8725 DATA "L                                N"
8730 DATA "L               FLFFFFFFFL        L"
8735 DATA "L                  L     L        L"
8740 DATA "L                  L   N   L      L"
8745 DATA "FFFFFFLF FFMF   FLF      LFFFFFMF"
8750 DATA "    L           G        L        "
8755 DATA "    L           L        G        "
8760 DATA "    L           L        L        "
8765 DATA "FMFFFFFF        FLF      L GN     "
8770 DATA "                        FLFFFFL   "
8775 DATA "  LFFFFFFML     L        L    L   "
8780 DATA "  L             L        L    L   "
8785 DATA "FFF        LFFFFFFFF     FFFFFFFF"
8790 DATA 6,20,3,31,11,27
8795 DATA 3,0,5,3,9,2,0,6
8796 DATA 0,1
8800 REM  DATA FOR SCREEN 9
8801 DATA 255,129,129,129,255,0,0,0
8802 DATA 0,108,222,238,254,124,56,16
8805 DATA 3,0,3,1,6
8810 DATA "                          L       "
8815 DATA "N          LFFFFFFL       L       "
8820 DATA "L          L     L    N   L       "
8825 DATA "LFFFFFL    FLFF GF LFFFFFFFFMF    "
8830 DATA "L  $  L    L     L                "
8835 DATA "FFFF  L    L   G L                "
8840 DATA "       L    FFFLFFFFFF             "
8845 DATA "       L      L                    "
8850 DATA "       L    FFMFF                  "
8855 DATA "       L          G     $ N  G     "
8860 DATA "       L          FLFFFFFFFFFFFFF"
8865 DATA "       FFFFFFFF     L              "
8870 DATA "                    L              "
8875 DATA "          FFFFFFFFF                "
8880 DATA "       $                        $ "
8885 DATA "FFMFFFFFFFFFFFFFFFFFFFFFFFFFFFFF"
8890 DATA 1,0,2,23,9,25
8895 DATA 2,14,6,14,3,-1,0,2
8896 DATA 5,18
8900 REM  DATA FOR SCREEN 10
8901 DATA 255,68,136,17,34,68,136,255
8902 DATA 0,2,134,125,124,194,129,0
8903 DATA 5,1,5,2,7
8910 DATA "          L                     N"
8915 DATA "FMF  LFFFFF          RRRRRRRRR  L"
8920 DATA "     L          FFLFFSSSSSSSSSFFF"
8925 DATA "     L            L              "
8930 DATA "     L            L              "
8935 DATA "     GL           L              "
8940 DATA "FFFLFL            L         N    "
8945 DATA "   L L      G     L         L    "
8950 DATA "   FFFFFFLFLFLF   FLF    FLF     "
8955 DATA "          L L   L             L  "
8960 DATA "          L R   RL            L  "
8965 DATA "          L SSSSL          FMFF  "
8970 DATA "        GL     LG                "
8975 DATA "        FFFFFFFFF                "
8980 DATA "  N                              "
8985 DATA "FFFFFFFFFFFMFFFFFFFFFFFFFFFFFFFF"
8990 DATA 0,31,6,25,14,2
8995 DATA 1,1,20,15,24,0,1,0
8996 DATA 0,1
9000 REM  DATA FOR SCREEN 11
9001 DATA 255,187,215,239,187,215,239,255
9002 DATA 36,66,165,24,24,165,66,36
9003 DATA 7,2,7,3,6
9010 DATA "FFFFFFFFFFFFFFFFFFFFLFFLFFFFFFFF"
9015 DATA "                    L             "
9020 DATA "    GNRRRR   RRRRR  L    RRRNG   "
9025 DATA " FFFFFSSSSFFFSS SSFFFFFFSSSSFFF "
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9030 DATA "                                  "
9035 DATA "                  RRRRR   G   RRR "
9040 DATA " FFFFF    FMF     FFLFFMFSSSFFF  "
9045 DATA "                          L       "
9050 DATA "                  RRRRR   L       "
9055 DATA " FFMFFFFFFFFFSSSSSSFLFFFF   FFF   "
9060 DATA "                                  "
9065 DATA "   G          N RRRRR  L     RRR   "
9070 DATA " FFFFF    FFFS S SFFLFFFFSSSFMF   "
9075 DATA "                          L       "
9080 DATA "                          L       "
9085 DATA "FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF"
9090 DATA 2,5,2,28,11,11
9095 DATA 3,0,6,3,12,1,0,1
9096 DATA 14,1
9100 REM  DATA FOR SCREEN 12
9101 DATA 255,204,204,51,51,204,204,255
9102 DATA 158,144,144,254,18,18,242,0
9103 DATA 0,0,16,32,166,104,48,48
9104 DATA 4,7,4,5,1
9110 DATA "L                  G              "
9115 DATA " L                 L       N      "
9120 DATA " LFFF              L    LFFFFFFL  "
9125 DATA " L      RRRRR  L   L     FL   "
9130 DATA " L     LSSSSSFFF   L        FL  "
9135 DATA " L      L          L        FL  "
9140 DATA " L FLFFFS          L L      L   "
9145 DATA " L  L              L LFFFFFFLF  "
9150 DATA " L  L              FFFFL    LF  "
9155 DATA " L   NLG  ULUG             LF   "
9160 DATA " L FFFFFFFFFFFFFFFM       LF    "
9165 DATA " L                 G     LF     "
9170 DATA " L              FMFLFFFFFLFFF    "
9175 DATA " L              L    L           "
9180 DATA "UL    UUUUUUU    L G UULUU   N  "
9185 DATA "FFFFFFFFFFFFFFFFFLFFFFFFFFFFFFF"
9190 DATA 1,25,14,30,9,5
9195 DATA 1,14,25,21,29,0,1,2
9196 DATA 1,3
9200 REM  DATA FOR SCREEN 13
9201 DATA 221,0,119,0,0,0,0,0
9202 DATA 32,112,224,80,8,4,2,0
9203 DATA 2,6,2,6,0
9210 DATA "                              L   "
9215 DATA "          A    N       UU     L   "
9220 DATA " FFFFMFFFFFFFFFFFFFFFFFFF   LFF   "
9225 DATA "                              L   "
9230 DATA "                           F FF   "
9235 DATA "FFFFFFFFFLF                       "
9240 DATA "         L                        "
9245 DATA "         L                FFF FFFF"
9250 DATA "         L     N                  "
9255 DATA "         FFFFFFFFFFFFMF           "
9260 DATA "                        L   AG    "
9265 DATA "                        LFFFFMFF F"
9270 DATA "                        L         "
9275 DATA "                        L         "
9280 DATA "    B       N         L G     L   "
9285 DATA "FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF"
9290 DATA 1,15,8,15,14,11
9295 DATA 1,4,5,0,10,0,1,19296 DATA 14,30
9300 REM  DATA FOR SCREEN 14
9301 DATA 96,245,255,255,255,255,255,255
9302 DATA 0,238,170,254,40,254,170,238
9303 DATA 255,195,129,129,129,129,195,255
9304 DATA 4,7,4,0,7
9310 DATA "                  L NRRRRRRRRRRR  "
9311 DATA "                   L SSSSSSSSSLSS "
9320 DATA " NRRRRRRR  U   L   U       L     "
9325 DATA " LSSSSGSSL     L           L     "
9330 DATA " FFFFFFFFFFFFFFFFFFFFF  G  L   "
9335 DATA "                           FLFFF  "
9340 DATA "                           L      "
9345 DATA "       FLFFL          FMFFFFF     "
9350 DATA "       L  L     G                "
9355 DATA "       L FFFLFFFFFFFFFFF          "
9360 DATA "       L   L                      "
9365 DATA " FMFFFFFF  L                      "
9370 DATA "           L                      "
9375 DATA "           L                      "
9380 DATA "           L  RR    N  R          "
9385 DATA "FFFFFFFFFFFFFFFSSFFFFFFF FFMFFFF"
9390 DATA 0,18,14,21,2,1
9395 DATA 5,7,2,3,3,0,0,5
9396 DATA 14,30
9400 REM  DATA FOR SCREEN 15
9401 DATA 255,189,217,241,233,197,131,255
9402 DATA 72,41,26,252,63,88,148,18
9403 DATA 255,34,255,136,255,34,255,136
9404 DATA 6,0,6,1,5
9410 DATA "FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF"
9415 DATA "U                           L  NU"
9420 DATA "U                        LFFF LU"
9425 DATA "ULFFFFFFL     G       RRRRLRRRRLU"
9430 DATA "UL       L  FFFFFFFLFFSS  SS  LFU"
9435 DATA "UL      LRRR   UU L          L U"
9440 DATA "UL      SSSSL  UU L          L U"
9445 DATA "UL  A R N   L  UU L RRR       L U"
9450 DATA "ULFFFF FFF FFFFFFFFFSSSFFFF   L U"
9455 DATA "UL                            L U"
9460 DATA "UL              G             L U"
9465 DATA "UFFFFFFFFFFLFFFFF             L U"
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9470 DATA "U          UFL                L U"
9475 DATA "U          U FL               L U"
9480 DATA "U          U  FLRRRURRRR N    LGU"
9485 DATA "FFFFFFFFFMFFFFSSSSSSSSSFFFMFFFFF"
9490 DATA 1,30,7,8,14,24
9495 DATA 3,0,5,1,9,1,0,6
9496 DATA 14,3
9500 REM  DATA FOR SCREEN 16
9501 DATA 187,170,238,0,238,170,187,0
9502 DATA 126,153,187,126,66,66,66,165
9503 DATA 0,5,0,3,1
9510 DATA "N    RRRRRR                     L"
9515 DATA "FFMFFSSSSSSFFFFFFFFFFFLFFFFFF  L"
9520 DATA "                            L   L"
9525 DATA "FFFFFLFFFFFFFFFFFFFFFFFFFFMFF  L"
9530 DATA "     L                          L"
9535 DATA "     L                          L"
9540 DATA "FFFFFFFFFFFFFLFFFFFFFFF  N      L"
9545 DATA "                                L"
9550 DATA "                L               L"
9555 DATA "LFFFFFFFFFFMFFFFFFFLFFFFFFFF  L"
9560 DATA "L                       L       L"
9565 DATA "L G G N G G    G G GL   G G     L"
9570 DATA "FFFFLFFFFFFFFFFFFFFFFFFFFFFFFF"
9575 DATA "    L                           "
9580 DATA "    L         RRRRR             "
9585 DATA "FFFFFFFFFFFFSSSSSFFFFFFFFFFFFF"
9590 DATA 0,0,6,27,11,6
9595 DATA 1,2,27,25,29,0,1,7
9596 DATA 14,30
9600 REM  DATA FOR SCREEN 17
9601 DATA 255,153,187,255,255,153,187,255
9602 DATA 60,66,133,153,153,161,66,60
9603 DATA 126,60,24,8,8,0,0,0
9604 DATA 1,6,1,2,5
9610 DATA "FFFFFFFFFFFFFLFFFFFFFFFFFFLFF"
9615 DATA "    U       U  GL       U       "
9620 DATA "                FFFFFFLMFFFFFL  "
9625 DATA "                        L    L  "
9630 DATA "              RRRRRRRRRL     L  "
9635 DATA " FFFFFFFFFSSSSSSSSSSFFFF FFFFF  "
9640 DATA "                                "
9645 DATA "                                "
9650 DATA "       FLFFFFFFFFF              "
9655 DATA "  N    L                        "
9660 DATA "       L                        "
9665 DATA "       L                        "
9670 DATA " FMFFFFF   LFFFFMFFFL           "
9675 DATA "           L            MFFFFFFL"
9680 DATA "           LGN      L   UN    L"
9685 DATA "FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF"
9690 DATA 14,13,9,2,14,26
9695 DATA 6,INT (RND*13)+1,INT (RND*15)+1,0,0,1,1,0
9696 DATA 14,1
9700 REM  DATASCREEN 18
9701 DATA 170,17,170,68,170,17,170,68
9702 DATA 196,40,19,124,156,42,73,72
9703 DATA 3,1,3,6,0
9710 DATA "FFFFFFFFFFFFFFFFFFFFFLFFFFFFFFF"
9715 DATA "                        L       "
9720 DATA "          RRRARR        L       "
9725 DATA "FFMFFFFFLSSSSSSFFF   L   FMFFFFF"
9730 DATA "        L               L       "
9735 DATA "LFFFFLF L               L       "
9740 DATA "L    L  L               L       "
9745 DATA "L    L  L         MLFFFFFFFFF   "
9750 DATA "L    LFFL         L             "
9755 DATA "L   NLG L   N  A LG           B  "
9760 DATA "LFFFFFFFFFFFFFFFFF      N   G     "
9765 DATA "L                       FFFFFF   "
9770 DATA "L                                "
9775 DATA "L                                "
9780 DATA "L                                "
9785 DATA "FFFFFFFFFMFFFFFFFFFFFFFFFFFFFMF"
9790 DATA 9,4,9,12,10,24
9795 DATA 7,9,6,0,0,0,-1,2
9796 DATA 14,15
9800 REM  DATA SCREEN 19
9801 DATA 255,153,153,255,255,102,102,255
9802 DATA 114,251,11,123,222,208,223,78
9803 DATA 2,0,2,7,4
9810 DATA "FFFFFFFFFFFFFFLFFFFFFFFFFFFFL"
9815 DATA "                    L       N    L"
9820 DATA "RAR    G                    RRR   N"
9825 DATA "SSSFFLFFFFFFF       FFFFFSSSFFF L"
9830 DATA "     L                          L"
9835 DATA "     L   NG                     L"
9840 DATA "     FFFFFFF                    L"
9845 DATA "                                L"
9850 DATA "                        RRR     L"
9855 DATA "FFFMFFFFFFFFF       FFFFFSSSFFFFF"
9860 DATA "                                "
9865 DATA "                                "
9870 DATA "                                "
9875 DATA "                                "
9880 DATA " RRRRR                          "
9885 DATA "FSSSSSFFFFFFF       FFFFFFMFFFFFF"
9890 DATA 1,25,2,31,5,9
9895 DATA 3,0,25,19,31,2,1,2
9896 DATA 14,0
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9901 DATA 223,16,247,4,255,1,127,64
9902 DATA 199,199,39,24,24,228,227,227
9904 DATA 1,5,1,4,0
9910 DATA "FFFFFFFFFFFFFFFFFFFFFFFFLFFFFF"
9915 DATA "F     L   F             F    L    F"
9920 DATA "F    FFF   F            FFFFFFFMFF"
9925 DATA "F RRRRRRRR              F         F"
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9935 DATA "F L       F LFFFFFFF F         F"
9940 DATA "F LRRRRRR F FFFFFFFL F         F"
9945 DATA "F SSSSSSL F         L F         F"
9950 DATA "F       L F     MFFFF F         F"
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9960 DATA "FLFFFFFFF F           F  L      F"
9965 DATA "FL  U U   F GN     RRRRRRL       F"
9970 DATA "FL    N   F FFFFF LSSFSSSFFF     F"
9975 DATA "FL        F       L F           F"
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9985 DATA "FFFFFMFFFFFFFFFFFFFFFFFFFFMFFFF"
9986 DATA 14,25,11,13,12,5
9987 DATA 3,0,15,11,20,1,0,6
9988 DATA 14,3
9990 REM  DATA  FOR ladders &      lifts
9991 DATA 66,126,66,66,66,126,66,66,255,66,36,24,24,36,66,255
9992 DATA 16,48,112,254,31,31,31,14,0,56,56,146,124,16,40,68
9993 DATA 255,129,129,189,161,129,129,255,16,56,40,56,40,56,108,214
9994 DATA 0,0,0,0,255,34,85,136,255,0,0,0,0,0,0,0
9995 DATA 192,192,32,16,60,126,255,255,3,3,4,8,60,126,255,255
9998 DATA 0,1,1,1,1,1,1,1,1,1
9999 DATA 1,1,1,1,1,1,1,1,1,1
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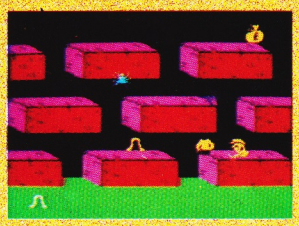

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SOFTWARE

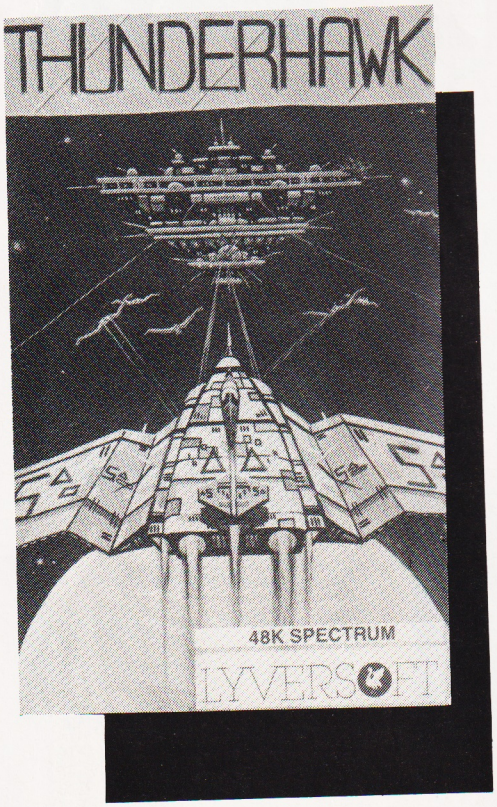
THUNDERHAWK

Runs on: 48 Spectrum
Made by: Lyversoft
Price: £5.95

In Thunderhawk you are in control of a space ship of the same name with which you must beat off Birdcraft as they relentlessly swarm towards you. As each of five attack waves hit you the game becomes increasingly quick and the Birdcraft more difficult to hit. The Birdcraft take different shapes and have different flight characteristics for each attack wave. If you manage to get through the attack waves your task is to destroy the command ship which has only one weak point.

One of the best features of this game is the clear, well-presented and very colourful graphics. Surprisingly few Spectrum games seem to make really effective use of the colour graphic capabilities of the machine, and in that respect it is refreshing to see a change from the normal run of things once in a while.

The controls are simple and the game is also Kempston joystick compatible. The graphics are clear and effective and the Birdships swoop in a realistic manner. Thunderhawk is basically another version of the old favourite Phoenix, but it is a highly effective, appealing and addictive implementation of the game.



CAVERUNNER

Runs on: All Ataris
Made by: English Software
Price: £9.95

This game for the Atari 400/800 and XL models requires one joystick, BASIC cartridge and 32K of RAM.

Keeping the start button pressed, switch on, press play on tape deck then return. After loading which takes nine minutes you will see a screen title of constantly changing colours set in the background of a cave, and the caverunner runs from left to right, after two passes there is a short demonstration of the program followed by on screen instructions for select, option and start.

You are the caverunner who must gather all the treasure from two caverns by touching them and running back to base. If you select novice skill level simply touching them wins that piece of treasure. There are five pieces in each cavern, appearing as a flashing symbol each time.

Simply touching?. Well yes, but first you have to get to it, and therein lies the difficulty of this super game for all the family. Hazards and obstacles of which there

are many, and graphically well displayed consists of: green slime on the walls and roof of the caves which kills instantly if you touch it, patches of water which must be crossed and if all these don't zap you, then there are waterfalls, erupting volcanoes and flying missiles. Passing these and collecting the treasure on the way must of course all be done against the clock.

On the second level, there are hurdles, dripping weed and Mr. Kong, if you get that far. To help you, you have almost total control of the caverunner with a joystick in port one. Although it may take a while to master, because of the many combinations the fire button is put to, these are:
BUTTON NOT PRESSED: left or right and he runs thus, back and he dives on his belly, forward and he stands up again.
BUTTON PRESSED: left or right with joystick and he'll jump that way, but be careful the longer you press the further he jumps, forward makes him jump straight up.

The problem is remembering all these in a tight spot, as panic sets in. The superb graphics, colours and sounds of the Atari are well used (even a death march as you float off to heaven) in what must be another top selling game from English software.

DEFFENDER

Runs on: ZX Spectrum
Made by: Mikro-Gen
Price: £4.95

This version comes with rather poor instructions and does not portray the true Defender picture. The object of the game is to fly around a planet shooting down aliens and boxes. The aliens pick up different kinds of boxes and try to reach the top of the screen. You just fly aimlessly around, the mountains don't even stop you, you just fly straight through them without harm.

This game is a poor copy, it's slow and very boring. My advice is to buy something similar to the game Defender, if you are into that kind of thing, and not this. A bad game for the 48K ZX Spectrum.

REVIEWS

SOFTWARE

PERSEUS AND ANDROMEDA

Runs on: Spectrum 48K
Made by: Channel 8
Price: £9.95

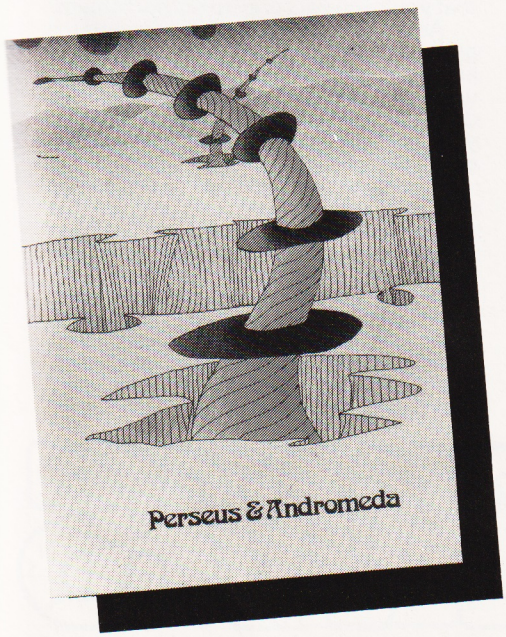
Perseus and Andromeda is the ninth in the Mysterious Adventure series produced by Channel 8 Software. Mysterious Adventures are available for the Spectrum 48K, BBC, Commodore 64, Atari 400/800 or Dragon 32.

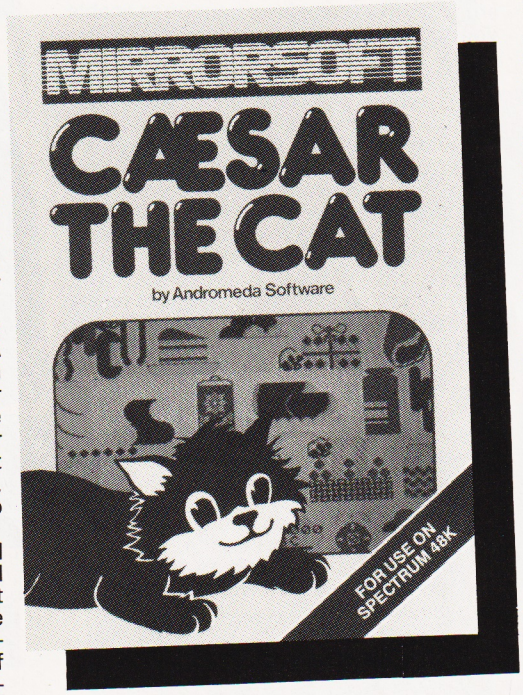
Perseus and Andromeda is based on the story of Perseus in Greek mythology. A short synopsis of the story is included with the tape up to the point at which your adventure begins. You are Perseus and the King of Seriphos, who married your mother, has demanded that you must bring back the head of Medusa the Gorgon, whose very glances could turn men to stone.

This adventure game is quite advanced and incorporates an optional pictorial scene in place of a short description at each stage of the journey. This picture although interesting was, I found, insufficient on its own and the description was of much more use in viewing your surroundings. The pack does not include a dictionary of words and phrases that the computer will understand so much experimenting is required, and I recommend use of a dictionary or a thesaurus to enable you to find a selection of other possible words that mean the same thing.

The Spectrum version of this game features a full sentence input facility which means the computer will comprehend full sentences instead of simple one or two word commands, despite this, I found communication to be the greatest barrier when playing Perseus and Andromeda.

I found the adventure tremendous fun and it is very addictive. I would not, however, recommend it for a novice adventurer since it requires at least a little experience in the art of adventuring, and also perhaps, a knowledge of Greek mythology would come in useful.





CAESAR THE CAT

Runs on: Spectrum 48K
Made by: Mirrorsoft
Price: £6.95

Caesar is guarding the larder from the hordes of hungry mice that eat up all the food. He must patrol the shelves, pouncing on each unsuspecting mouse and remove it from the larder. Caesar has complete freedom of the larder, being able to walk along each shelf and also able to jump up or down from shelf to shelf. To control his movements either a joystick or the keyboard can be used, the keys are well chosen for ease of use.

The mice in the larder do not stay in one place. If they see Caesar approaching, they will disappear as fast as lightning, so you must be quick in order to catch them. When you catch a mouse, you will see a door appear in one part of the screen through which you must exit with the mouse. The door is not always in the same position and it is often difficult to recognise, so you must always be alert.

You get points for every mouse removed from the larder; black mice are worth 300 points, blue mice are worth 500 points and red mice are worth 700 points. There are ten mice of each colour. You start the game with 1000 points which gradually gets less as time passes, but if Caesar stops moving your score will disappear in no time at all.

There are other penalities to watch out for. If you knock the crockery off the shelves you lose 1000 points, and if you knock off the red jar, the game is over. Caesar will also lose 100 points every time he bangs his head against the wall.

Sound difficult? Well it is, but it is also great fun. The graphics are very amusing and Caesar himself is the centrepiece. Caesar the cat is a must for all Spectrum owners.

DIGGER DAN

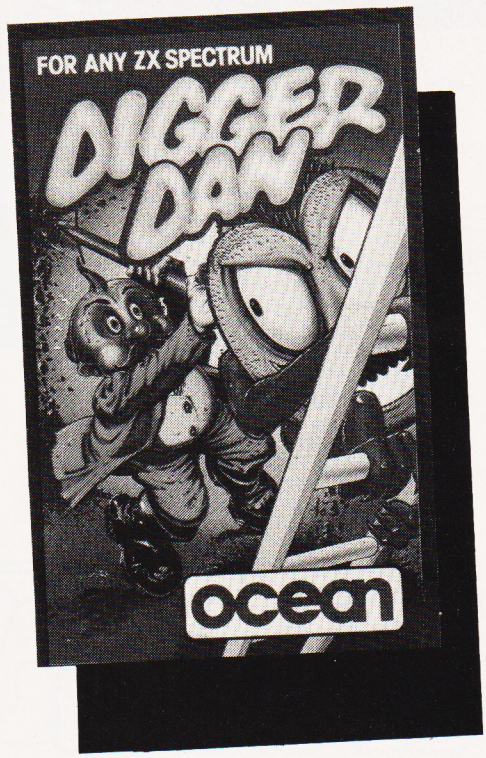
Runs on: Spectrum 16K & 48K
Made by: Ocean Software
Price: £5.90

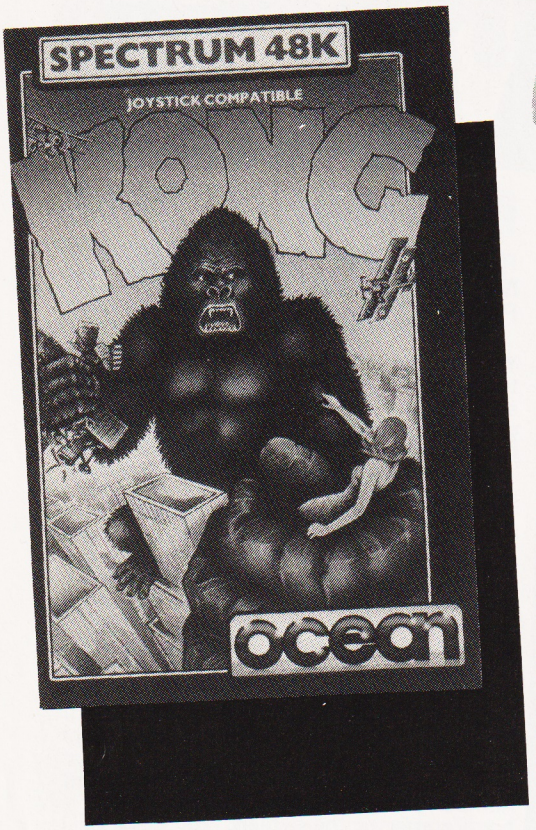
You are Dan and, armed with only your trusty spade, you must avoid being gobbled up by the monsters. As the game progresses the beasts become smarter and hungrier and you must concentrate harder.

You are underground and on the bottom of the five levels. Ladders extend to the upper levels and both you and the monsters can climb these in either direction. At the bottom of the screen there is a yellow bar labelled 'oxygen', which shows how much oxygen you have left. As your oxygen gets less, the bar gets shorter. When the bar gets to a certain length it will turn red, indicating you have little oxygen left, and an oxygen bottle will appear on one of the levels. To stay alive you must reach the oxygen bottle before the time runs out.

You begin the game with four lives, this number being indicated in the top right hand corner of the screen. You have to keep up a supply of oxygen and score points by killing the monsters that follow you around. To do this you must trap them by digging a hole for them to fall into. Once you have trapped a monster, you have only a very short time to fill in the hole before the monster leaps out. There are four types of monster, scoring, 10, 20, 30 and 40 points depending on how difficult they are to catch.

Dan is moved by using the keyboard but I found the keys were badly chosen and I needed three hands to operate it successfully. A lack of explicit instructions lead to a slow start but the game was quite easy to pick up. An enjoyable game for arcade enthusiasts which incorporates a challenging high score.



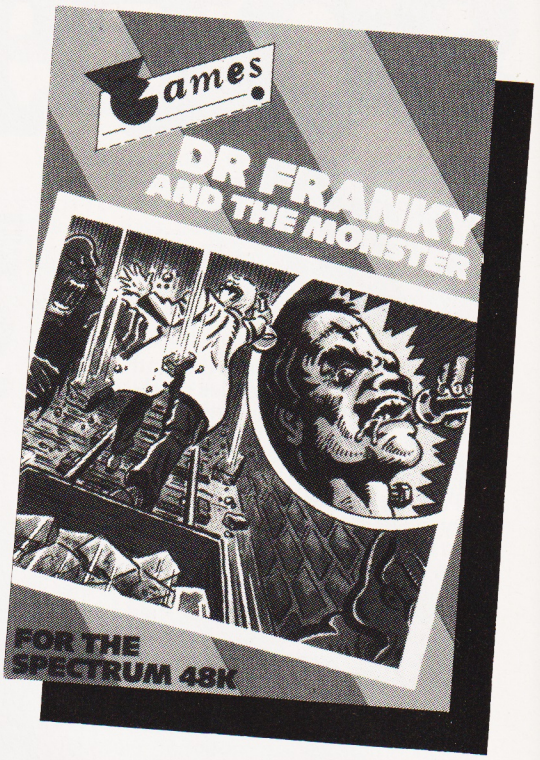


SPECTIPEDE

Runs on: 48 K Spectrum
Made by: R&R Software
Price: £5.50

In this game your task is to destroy the Spectipedes which are continually slithering downscreen towards you. You are armed with a trusty laser cannon to enable you to vanquish the beasts as they inexorably hunt you out. You also have the added hazard of mushrooms which, when they become poisoned, are apt to cause the Spectipedes to fall earthward on top of you with dire results. Additionally, fleas are produced which are difficult to hit and require two successful strikes before succumbing, and after you first hit them they speed up becoming even more difficult to make contact with. Scorpions travel across the screen and poison any mushrooms which they touch and finally there is the occasional spider which is ever willing to jump on you.

The game controls are simple and efficient to operate, and the game is compatible with Kempston and other leading joysticks. As you manage to clear one screen of the rather oddly assorted enemies you receive a bonus score before proceeding to the next screen. Apparently if you manage a higher enough score you are awarded with an extra life, I was obviously not nimble fingered enough to get that far. Spectipede is a well implemented, very playable game.



KONG

Runs on: Spectrum 48 K
Made by: Ocean Software
Price: £5.90

You must rescue the girl from the clutches of Kong. Run along the girders and climb the ladders to reach her but be careful, Kong has spotted you and will throw everything he can lay his hands on to stop you. You must jump over the obstacles or smash them with your hammer, and when you succeed in reaching the top you progress to a more difficult screen. Only on the final screen can you defeat Kong and bring him crashing down. Bonus objects appear at random and should be picked up for extra points.

Screen information shows current score and bonus, also the number of lives you have remaining of five. You get 100 points for smashing barrels and overcoming other obstacles. You get a bonus every time you complete a screen and bonus gems which appear at random gain 200 points.

Either keyboard or Kempston joystick may be used and the keyboard keys are well chosen. Instructions given are adequate.

An extra feature of Kong is the training mode which enables you to practise on each level of the game without losing lives and without having to succeed in one level before moving to the next. Kong is excellent fun with a lot of variation. One of the few games that gives the satisfaction of being able to finally defeat something at the end instead of simply attaining a higher score. A lot of fun for any age.

DR FRANKY AND THE MONSTER

Runs on: 48 K Spectrum
Made by: Virgin Games
Price: £5.95

In Dr. Franky you take the part of a well-known philanthropist who is seeking to give his cherished creation life. He faces a few obtacles on the path though — the people he used to create his monster have returned as loathsome ghouls which infest the dungeons of his castle. You move up a grid using left and right control keys, and a jump key. The instructions helpfully warn you that you must immediately move onto a ledge or you fall back towards ground again — and probably a waiting meany. As well as monsters which roam around the grid in a reasonably predictable, if not so often avoidable manner, there are monsters whish suddenly arrive at the top of the grid just as you think all is safe and that you're on your way to further screens.

As you proceed through the screens the grids become increasingly difficult to move around in, and the pace of the game heats up. As if it were not enough to continually do battle with all the wandering nasties, you are also meant to pick up flasks of life-giving chemicals.

When you reach the end of one screen the excellent graphic picture of the Frankenstein monster in the top left hand corner is given a jolt of electricity and seems to be trying to rise into life.

Dr. Franky reminds me of Donky Kong in terms of the way you move around the screen — though I would not advise trying to jump over Ghouls, and it is a very attractive easily picked up but increasingly challenging game to play.

REVIEWS

SOFTWARE

DONKEY KONG

Runs on: TI99/4 A
Made by: Atarisoft
Price: £24.99 (Rom cartridge)

Mario to the rescue again!

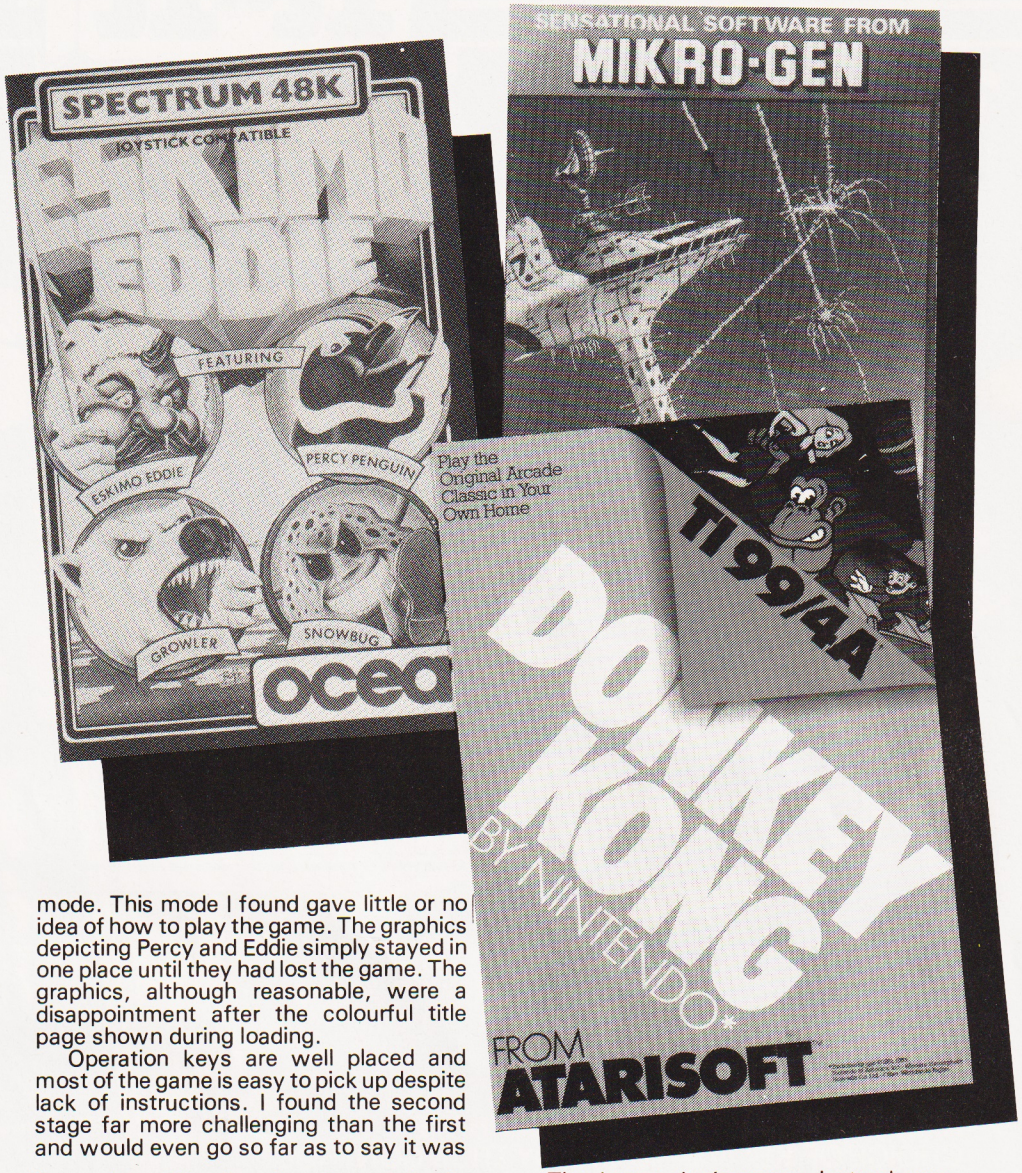
Joystick movement takes the fearless little carpenter back and forth in his desperate ascent to the top of a pile of girders, where Donkey Kong holds his girlfriend captive. He must also climb ladders and leap over rolling barrels to reach her, only to have the damsel snatched from him once again.

Next he must scale a pyramid of girders to save her and unplug rivets as he goes on his way, all the while avoiding deadly fireballs which pursue him. After accomplishing so much, he is foiled yet again and has to jump across a number of moving elevators, whilst still avoiding the relentless fireballs. Finally, to rescue his sweetheart, he must avoid moving buckets of sand, in addition to fireballs, and negotiate a complex chain of conveyor belts.

He gets three chances to reach the top of each of the four screens; a forth if he scores 7,000 points, and it's a race against the clock. Speed counts or barrels and fireballs come thicker and faster. During his ordeal Mario can grab hammers to flatten barrels, fireballs and sand piles for limited periods and gain extra points. He can also add more by picking up his beloved's hat, purse and umbrella on the way.

The instructions are concise and humorous, with hints on strategy. One or two player games can be selected. Graphic quality is really excellent and movements smooth and realistic. The difficulty level is well set to frustrate yet encourage further play. By TI standards it is exceptional.

In ROM cartridge form it seems expensive, but when you discover the quality of this game you'll see why it's worth it.



ESKIMO EDDIE

Runs on: Spectrum 48 K
Made by: Ocean
Price: £5.90

Percy the penguin has been rapped by Growler the polar bear, you, Eddie the Eskimo, must free him from his predicament and take him to safety, but you must make haste for time is running out fast. If you succeed, you must then help Percy defend himself from the deadly Snowbugs who attack from all directions. To avoid them, Percy must push the ice blocks out of his way and into the path of the snowbugs to escape, but the snowbugs keep on getting nastier and nastier.

You have three lives to complete the whole game, the idea being to get a high a score as possible. The game incorporates three joystick options and one keyboard option plus the option of a demonstration mode. This mode I found gave little or no idea of how to play the game. The graphics depicting Percy and Eddie simply stayed in one place until they had lost the game. The graphics, although reasonable, were a disappointment after the colourful title page shown during loading.

Operation keys are well placed and most of the game is easy to pick up despite lack of instructions. I found the second stage far more challenging than the first and would even go so far as to say it was impossible without previous knowledge to win. There is a high score to be incorporated in the program but to get your name on the table you must attain a minimum score. Eskimo Eddie was interesting to begin with but I quickly lost interest.

CRUISE ATTACK

Runs on: Spectrum 48 K
Made by: Mikro-Gen
Price: £5.50

Yet another space game. The object of this game is to command two space ships with two lives and a limited supply of missiles which are (surprise surprise!) supposed to kill aliens.

The bases don't move, instead you move a target around the screen showing where your missile will hit. The game requires a certain amount of skill as accurate timing is essential.

There are two types of alien, one is a shape coming down the screen and the other is a white streak of which you must hit the head. You move the target, fire, and if your time it right the alien and the missile will connect eliminating one alien. Apart from your two ships, at each side of the screen, there is the city which you're supposed to be defending. These are rows of buildings and will be destroyed on the first hit.

The game is fun and provides a challenge, it is also one of these games that gets better the more you play. A good variation of Missile Command for the 48 K ZX Spectrum.

REVIEWS

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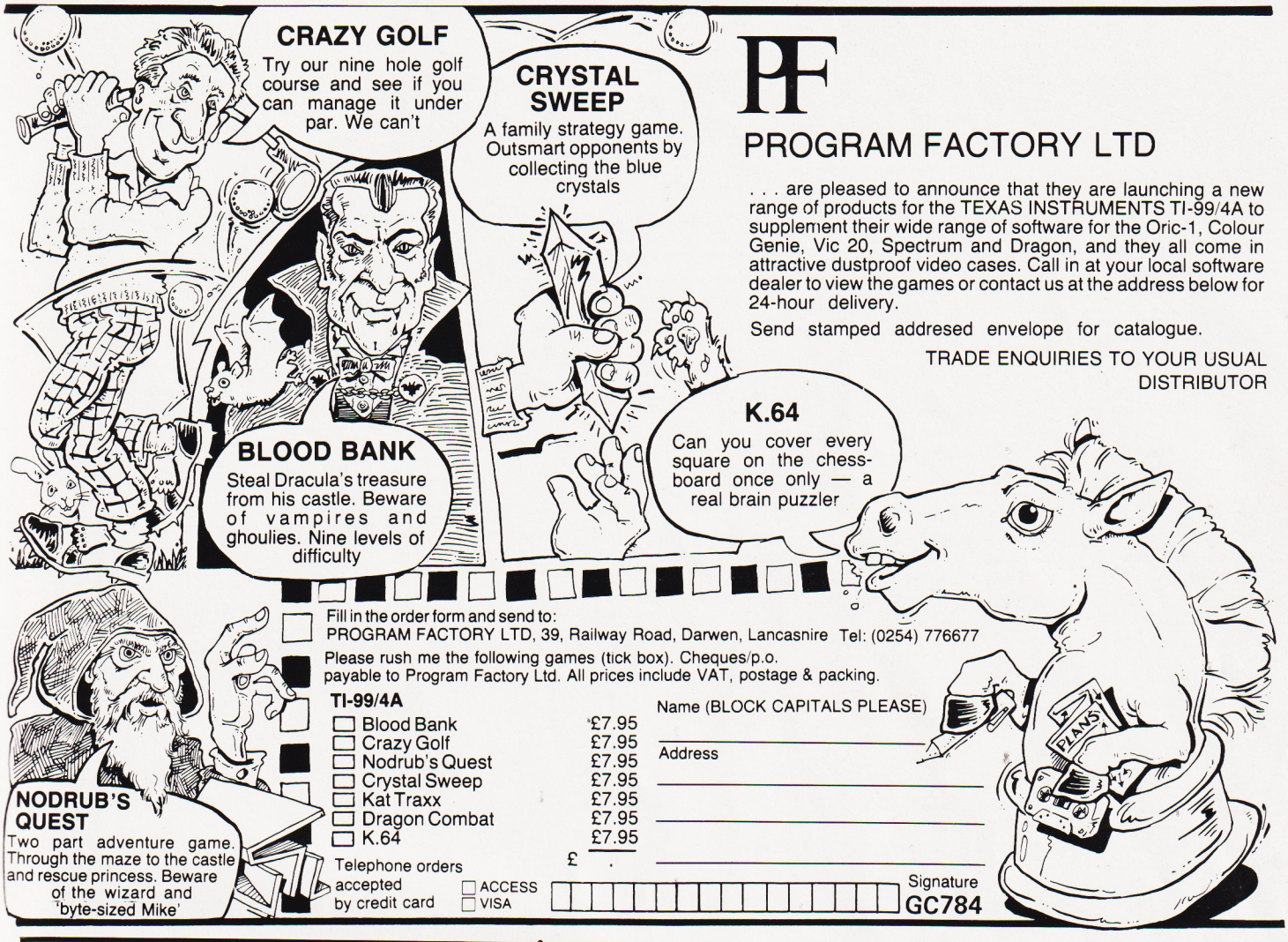

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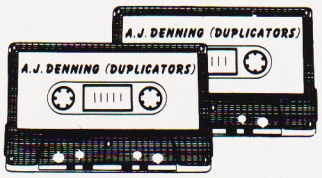

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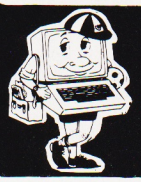

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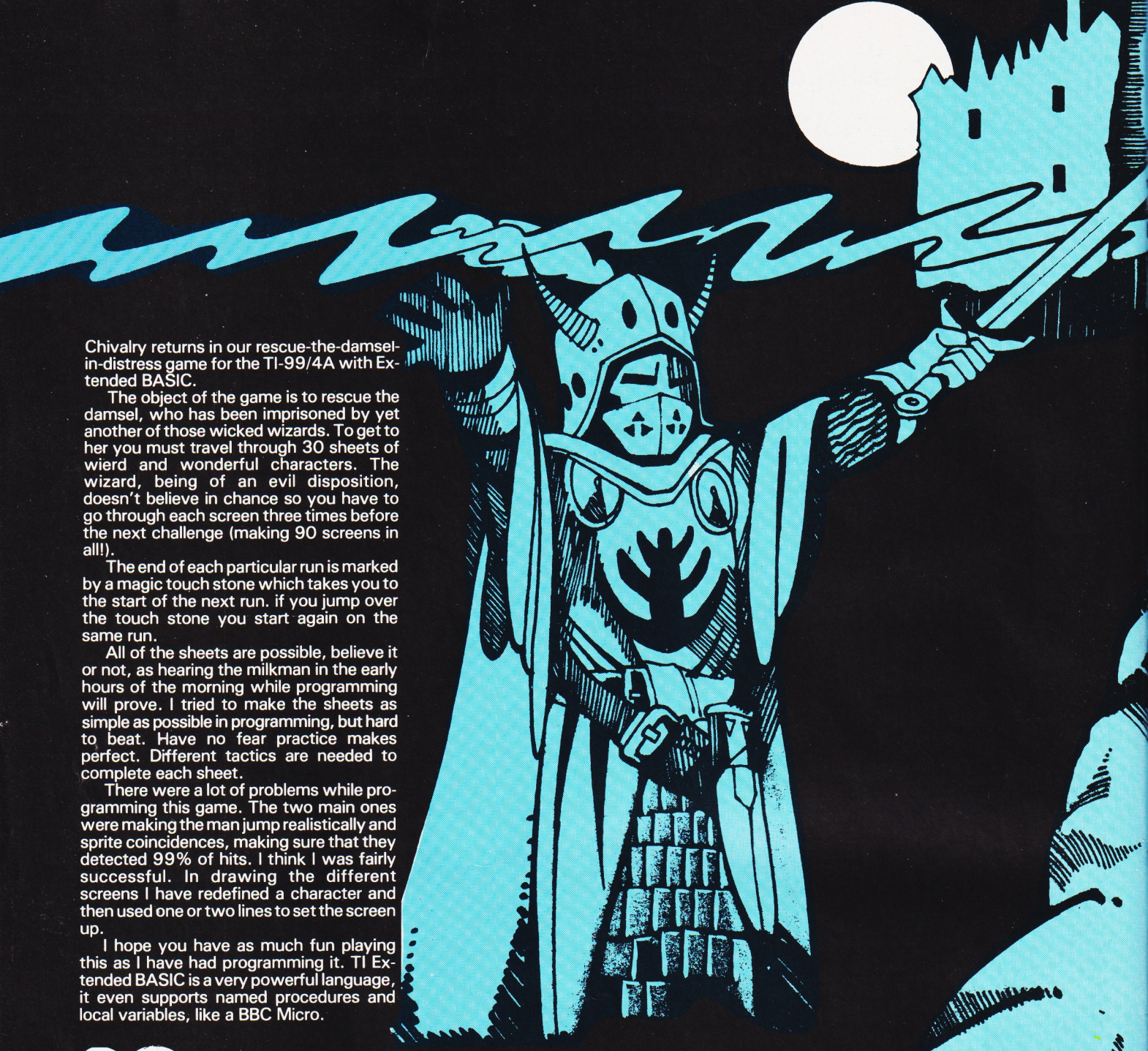


Chivalry returns in our rescue-the-damsel-in-distress game for the TI-99/4A with Extended BASIC.

The object of the game is to rescue the damsel, who has been imprisoned by yet another of those wicked wizards. To get to her you must travel through 30 sheets of wierd and wonderful characters. The wizard, being of an evil disposition, doesn't believe in chance so you have to go through each screen three times before the next challenge (making 90 screens in all!).

The end of each particular run is marked by a magic touch stone which takes you to the start of the next run. if you jump over the touch stone you start again on the same run.

All of the sheets are possible, believe it or not, as hearing the milkman in the early hours of the morning while programming will prove. I tried to make the sheets as simple as possible in programming, but hard to beat. Have no fear practice makes perfect. Different tactics are needed to complete each sheet.

There were a lot of problems while programming this game. The two main ones were making the man jump realistically and sprite coincidences, making sure that they detected 99% of hits. I think I was fairly successful. In drawing the different screens I have redefined a character and then used one or two lines to set the screen up.

I hope you have as much fun playing this as I have had programming it. TI Extended BASIC is a very powerful language, it even supports named procedures and local variables, like a BBC Micro.

Sir Prance-A-Lot

RUNdown

Line	Action
100-110	Initialise variables.
120	GOSUB character define, set sprite size (16 × 16).
130	Set screen colours.
140	GOSUB titles and instructions.
150	Screen control, i.e. sets up sprites and characters for each sheet of game.
160-170	Set screen colour.
180	PRINT players sprite.
190-200	PRINT messages.
210-240	Main move and hit! routine.
250-270	Jump routine.
280	Has man reached the end of the screen?
290-1280	Set up screens.
1290	Check if man has hit damsel.
1300	Jumps to end routine if three screens have been run and the player has touched the damsel.
1310-1360	Dead man routine, play death march.
1370	All men are dead, PRINT score.
1380	Checks if player wants to play again.
1390-1400	Man has reached the end of the sheet, if last sheet then return to move routine.
1410	PRINT screen completed and clear sprites.
1420	Add on extra men and score, GOTO next screen.
1430	Man gets girl.
1440	Clear all sprites except man and girl.
1450	Set man and girl walking.
1470	Check if man has walked for enough, Play tune.
1480-1490	Tune DATA.
1500	Increase score and difficulty.
1510	PRINT message.
1520	Delay.
1530	Increase men by three, reset and clear screen.
1540-1680	Define characters.
1690-1720	PRINT title screen.
1730	Clear screen.
1740-1790	PRINT instructions.

RUNS ON TI-99/4A +Extended Basic

Variables Used

To conserve memory variables have been used more than once.

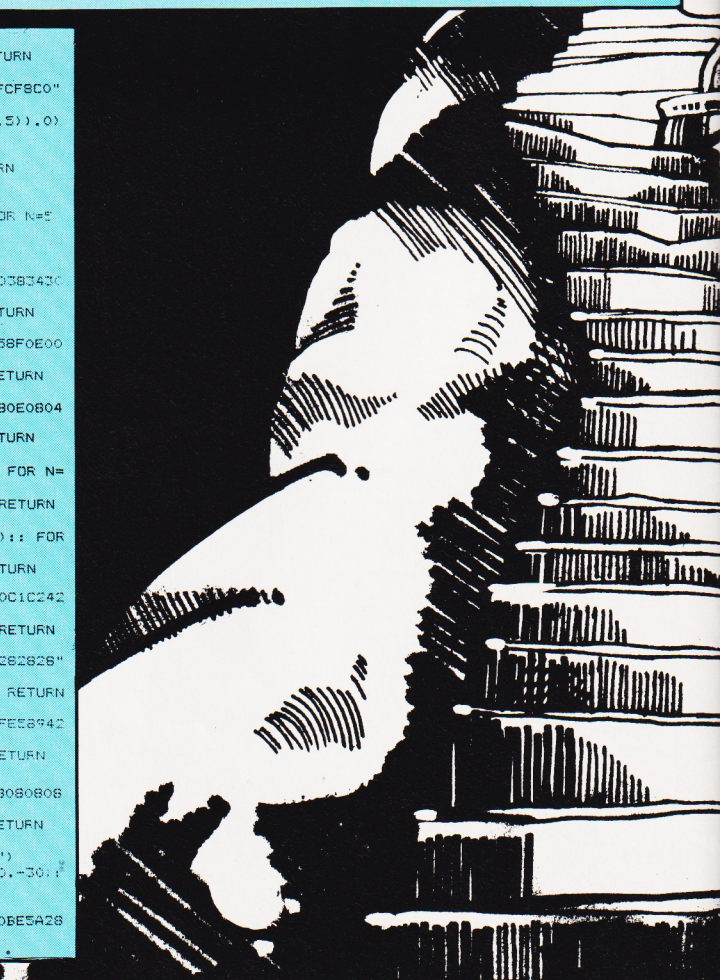
CO	Run number.
L	Sheet number.
SC	Score.
R	Character for man's sprite.
Z	Number of runs to be completed.
Q,N	Looping.
X$	Various items to be printed.
X,Y	Returns for joysticks and position of player.
A	Direction of player.
D,B,C	Returns for sprite hits.
H	Jump vertical velocity.
T,F	Tone, frequency for tunes.
K	Return for key pressed.

Conversion Clues

To change to use from the keyboard change the following lines.

```
220 CALL PATTERN( 1,R) :: CALL KEY(1,K,S) :: A=(10 AND K=3)
+(-10 AND K=2) :: CALL MOTION( 1,O,A) :: CALL POSITION( 1,X,Y) ::
IF Y 48 THEN CALL LOCATE(£1,89,50)
230 CALL COINC(ALL,B) :: IF B THEN 1300 ELSE CALL KEY(2,K,S)
IF K=13 THEN 250 ELSE IF Y 235 THEN 280
```

```
90 REM **********************
91 REM * sir prance-a-lot   *
92 REM *TI99/4A EX.BASIC    *
93 REM *(C)1984 N.LAWSON    *
94 REM **********************
100 RANDOMIZE :: CALL CLEAR
110 CO.L=1 :: SC=0 :: R=100 :: MEN=9 :: Z=4
120 GOSUB 1540 :: CALL MAGNIFY(3
130 FOR N=3 TO 8 :: CALL COLOR(N.16.2):: NEXT N :: CALL COLOR(1.2.1.2.7.12.11.15
.1
140 GOSUB 1690
150 ON L GOSUB 290.350.380.410.440.470.500.530.550.580.620.650.680,720,740,770.8
00,830,870,890,920,940,970,1000,1030,1050,1080,1110,1140,118C
160 COL=L+2
170 IF COL>16 THEN COL=COL-14 :: GOTO 170 ELSE CALL SCREEN(COL):: CALL COLOR(13.
COL-1.1
180 CALL SPRITE(£1.R.2.89.50)
190 CALL HCHAR(24.1.33.32):: X$="SCREEN!"&STR$(L):: DISPLAY AT(24.1)SIZE(LEN(X$)
):X$
200 X$="MEN="&STR$(MEN)&"!!" :: DISPLAY AT(24.14)SIZE(LEN(X$)):X$ :: X$="RUN!"&S
TR$(CO):: DISPLAY AT(24.23)SIZE(LEN(X$)):X$ :: X$="SCORE="&STR$(SC):: DISPLAY A
(22.10)SIZE(LEN(X$)):X$
210 CALL MOTION(£1.0,0):: CALL JOYST(1.X,Y):: CALL SOUND(-100.-2.20):: CALL COLO
R(£1,INT(RND*15+2)):: IF X+2*Y=0 THEN 210 ELSE CALL COLOR(£1.2
220 CALL PATTERN(£1,R):: CALL JOYST(1,A,X):: A=A*2.5 :: CALL MOTION(£1.0.A):: CA
LL POSITION(£1,X,Y):: IF Y<48 THEN CALL LOCATE(£1.89.50
230 CALL COINC(ALL.B):: IF B THEN 1300 ELSE CALL KEY(1.K.S):: IF K=18 THEN 250 E
LSE IF Y>235 THEN 280
240 R=R+4 :: IF R>112 THEN R=92 :: GOTO 220 ELSE 220
250 H=-1.8 :: FOR N=1 TO 5 :: CALL MOTION(£1,H.A):: H=H+H :: CALL SOUND(-100.11C
*N.10):: CALL COINC(ALL.C):: IF C THEN 1300
260 NEXT N :: H=2 :: FOR N=1 TO 5 :: CALL MOTION(£1,H.A):: H=H+H :: CALL SOUND(-
100.550/N.10):: CALL COINC(ALL.D):: IF D THEN 1300
270 NEXT N :: CALL MOTION(£1,0,A):: CALL POSITION(£1,X.Y):: CALL LOCATE(£1.89.Y
:: GOTO 220
280 CALL MOTION(£1.0,0):: CO=CO+1 :: SC=SC+10 :: CALL SOUND(100.440.0):: CALL LO
CATE(£1,89.50):: IF CO=Z THEN 1390 ELSE 200
290 REM SHEET 1
300 CALL CHAR(120."0F0C0E0F0F0F0F0F070301"&RPT$("0".10)&"80C0603098CCE6F3FFFFFFF
F7F3F1F0F"
310 CALL CLEAR :: CALL HCHAR(8.1.40,512):: CALL HCHAR(13.1.41.64):: CALL HCHAR(2
4,1,33.32):: CALL HCHAR(13,32.34
320 FOR N=4 TO 32 STEP 8 :: CALL HCHAR(4.N.128):: CALL HCHAR(5.N.129):: CALL HCH
AR(4,N+1.130+(1 AND(N=12 OR N=28))):: NEXT N
330 FOR N=3 TO 32 STEP 4 :: CALL HCHAR(6.N.40.2):: CALL HCHAR(7.N.40.2):: CALL H
CHAR(6,N-1,35):: CALL HCHAR(7,N-1,33):: CALL VCHAR(9,N.33.2):: NEXT N
340 FOR N=2 TO 3 :: CALL SPRITE(£N.120.5.97.(N-1)*127.0.-5):: NEXT N :: RETURN
350 REM SHEET 2
360 FOR N=1 TO 3 :: CALL SPRITE(£N+1.116.N+12.89.N*85.0.-5):: NEXT N
370 RETURN
380 REM SHEET 3
390 CALL CHAR(120."0000031F3F207F60607F203F1F0300000000C0F8FC04FE0606FE02FCF8C0"
400 FOR N=2 TO 7 :: CALL SPRITE(£N.120.16.1.N*32.INT(RND*30+10).0):: NEXT N :: R
ETURN
410 REM SHEET 4
420 CALL CHAR(120."0000081727224777F47472727170D050F"&RPT$("0".32))
430 FOR N=2 TO 4 :: CALL SPRITE(£N,120,N+5,89,(N-1)*85.0.-6):: NEXT N :: RETURN
440 REM SHEET 5
450 CALL CHAR(120."41637E7E703E3E3E3E1E1E0E07030101B2C67E7E1E7C7C7C787870E0C08
080"
460 FOR N=2 TO 4 :: CALL SPRITE(£N.120.N.93.(N-1)*85.0.-7):: NEXT N :: RETURN
470 REM SHEET 6
480 CALL CHAR(120."0814226110080402010103 1F1F1F0906000000000804C3010F8FCFAFFFFFF1
```



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200"
490 FOR N=2 TO 4 :: CALL SPRITE(£N.120.2.89.(N-1)*85.0.-7):: NEXT N :: RETURN
500 REM SHEET 7
510 CALL CHAR(120."0000031F3F207F60607F203F1F0300000000C0F8FC04FE0606FE02FCF8C0"
520 FOR N=2 TO 7 :: CALL SPRITE(£N.120.15.1.N*32.INT(RND*30+10)*(SGN(RND-.5)).0)
:: NEXT N :: RETURN
530 REM SHEET 8
540 FOR N=1 TO 3 :: CALL SPRITE(£N+1.124.5.89.N*85.0.-9):: NEXT N :: RETURN
550 REM SHEET 9
560 CALL CHAR(120."0000072261FF602"&RPT$("0".21)&"FF00008"&RPT$("0".17))
570 FOR N=2 TO 3 :: CALL SPRITE(£N.120.16.79.(N-1)*85.0.-7):: NEXT N :: FOR N=5
TO 7 :: CALL SPRITE(£N.120.16.99.(N-4)*85.0.-3):: NEXT N :: RETURN
580 REM SHEET 10
590 CALL HCHAR(12.1.41.32):: CALL HCHAR(14.1.40.32)
600 CALL CHAR(120."0000000004442E1F3FFB3F1F2E44040000030F1323438303833E3830383430
303")
610 FOR N=2 TO 4 :: CALL SPRITE(£N.120.2.89.(N-1)*85.0.13):: NEXT N :: RETURN
620 REM SHEET 11
630 CALL CHAR(120."070F1F39797F7F3E1F1A181D1F070000E0F0F89C9EFEFE7CF8B81858F0E00
000"
640 FOR N=2 TO 4 :: CALL SPRITE(£N.120.16.91.(N-1)*85.0.-3):: NEXT N :: RETURN
650 REM SHEET 12
660 CALL CHAR(120."114A4925130F050F0C07030107010 20C1020244CD0E0A0F070E0C080E0804
030"
670 FOR N=2 TO 4 :: CALL SPRITE(£N.120.N.89.(N-1)*85.0.13):: NEXT N :: RETURN
680 REM SHEET 13
690 CALL CHAR(120."031F3F1F7F0F1F01"&RPT$("0".16)&"C0F0E0F8FCF8FCE000"):: FOR N=
2 TO 3 :: CALL SPRITE(£N,120,13,97,(N-1)*127,0.5):: NEXT N
700 FOR N=4 TO 5 :: CALL SPRITE(£N.120.14.88.(N-3)*127.0.-7):: NEXT N :: RETURN
710 REM SHEET 14
720 CALL CHAR(120.RPT$("0".10)&"103070FF703010"&RPT$("0".20)&"2448F04824"):: FOR
N=2 TO 4 :: CALL SPRITE(£N.120.5.93.(N-1)*85.0.-5):: NEXT N
730 FOR N=5 TO 7 :: CALL SPRITE(£N.120.8.77.(N-4)*85.0.-4):: NEXT N :: RETURN
740 REM SHEET 15
750 CALL CHAR(120."3EF8F83C0C0C0D0DF0F0F142428284800000000 40E1B11AFCFCFC0C1C242
444"
760 FOR N=2 TO 4 :: CALL SPRITE(£N.120.N+5.89.(N-1)*85.0.-5):: NEXT N :: RETURN
770 REM SHEET 16
780 CALL CHAR(120."000000C0212377DFFF77040C1424000000000060181C1E2FCF0F0282828 6"
790 FOR N=2 TO 3 :: CALL SPRITE(£N.120.N+1.87.(N-1)*85.0.-11):: NEXT N :: RETURN
800 REM SHEET 17
810 CALL CHAR(120."000003077EFFA757FB7B0303020409 1B00089ECAC2C2DAFEFEFFFEFE3842
46C"
820 FOR N=2 TO 4 :: CALL SPRITE(£N.120.13.89.(N-1)*85.0.-9):: NEXT N :: RETURN
830 REM SHEET 18
840 CALL CHAR(120."1C3C7DFFFF7D3D1D0101010101010101000080C0C0808080808080808080
080"
850 FOR N=2 TO 4 :: CALL SPRITE(£N.120.15.89.(N-1)*85.0.13):: NEXT N :: RETURN
860 REM SHEET 19
870 CALL CHAR(120.RPT$("0".15)&"70404040F90E0E0F0011E1212FE9090F0808080")
880 FOR N=2 TO 13 :: S=INT(RND*15+15):: CALL SPRITE(£N.120.16.1.N*16+27.30.-30.1
: NEXT N :: RETURN
890 REM SHEET 20
900 CALL CHAR(120."0202070F0702070F1727FF05050300000000060002 0A0E0030DF40BE5A28
000"
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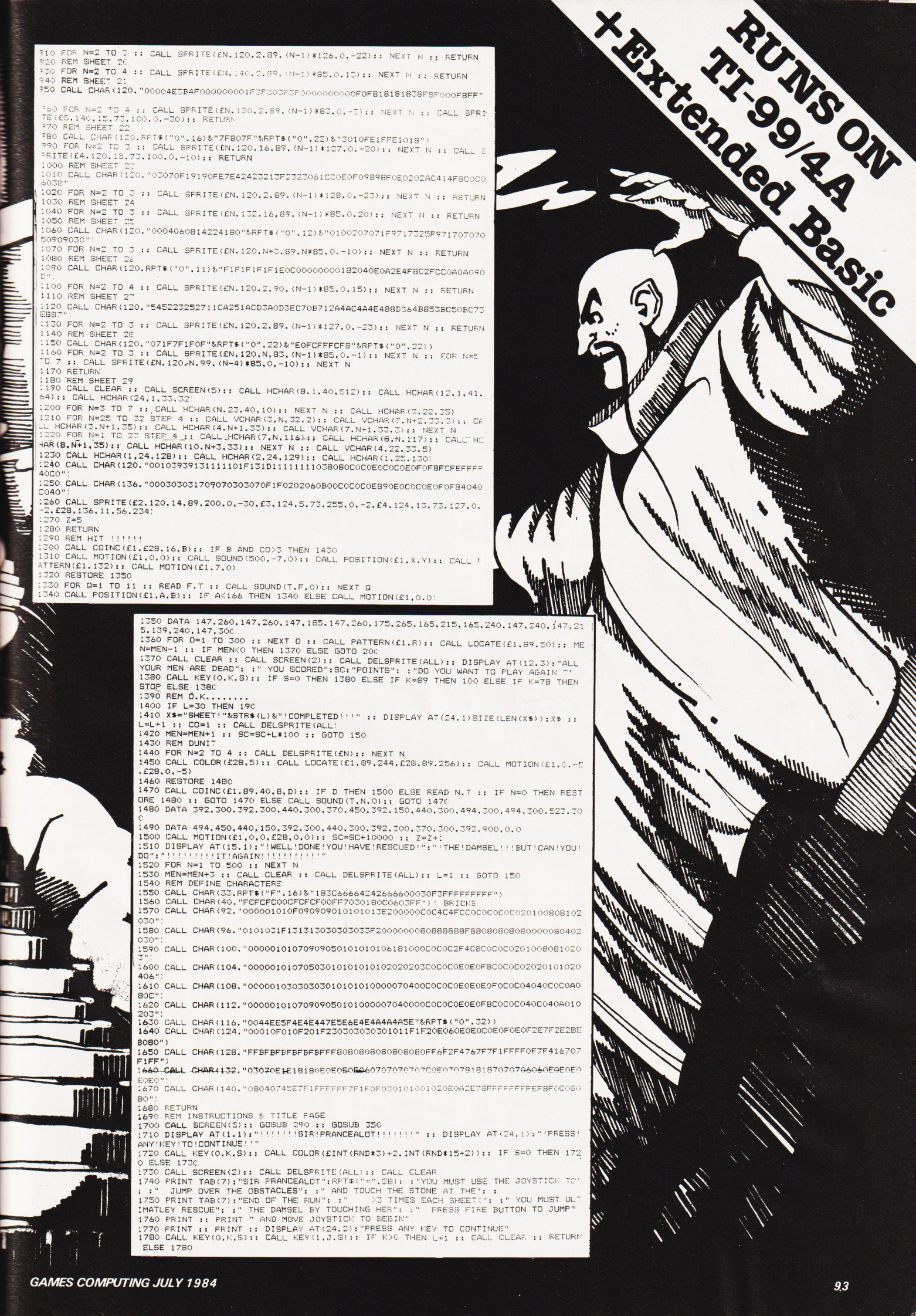
RUNS ON TI-99/4A +Extended Basic



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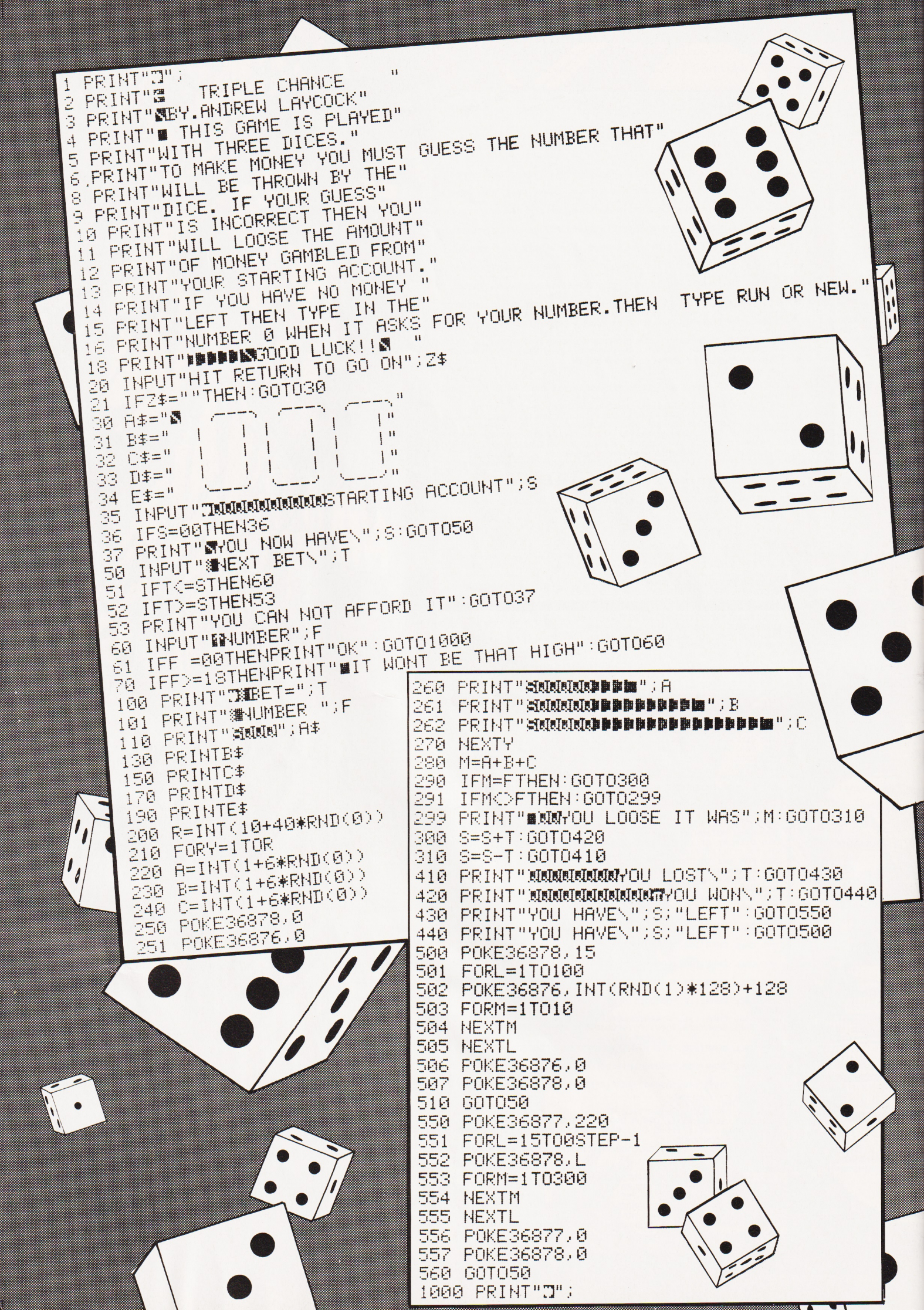
910 FOR N=2 TO 3 :: CALL SPRITE(£N,120,2,89,(N-1)*126,0,-22):: NEXT N :: RETURN
920 REM SHEET 2C
930 FOR N=2 TO 4 :: CALL SPRITE(£N,140,2,89,(N-1)*85,0,13):: NEXT N :: RETURN
940 REM SHEET 2:
950 CALL CHAR(120,"00004E3B4F000000001F3F303F3F0000000000F0F818181838F8F000F8FF"
960 FOR N=2 TO 4 :: CALL SPRITE(£N,120,2,89,(N-1)*83,0,-3):: NEXT N :: CALL SPRI
TE(£5,140,15,73,100,0,-30):: RETURN
970 REM SHEET 22
980 CALL CHAR(120,RPT$("0",16)&"7F807F"&RPT$("0",22)&"3010FE1FFE1018")
990 FOR N=2 TO 3 :: CALL SPRITE(£N,120,16,89,(N-1)*127,0,-20):: NEXT N :: CALL S
PRITE(£4,120,15,73,100,0,-10):: RETURN
1000 REM SHEET 2C
1010 CALL CHAR(120,"03070F19190FE7E4242321F2323061CC0E0F09898F0E0202AC414F8C0C0
6038")
1020 FOR N=2 TO 3 :: CALL SPRITE(£N,120,2,89,(N-1)*128,0,-23):: NEXT N :: RETURN
1030 REM SHEET 24
1040 FOR N=2 TO 3 :: CALL SPRITE(£N,132,16,89,(N-1)*85,0,20):: NEXT N :: RETURN
1050 REM SHEET 2E
1060 CALL CHAR(120,"0004060814224180"&RPT$("0",12)&"0100207071F9717325F971707070
50909030")
1070 FOR N=2 TO 3 :: CALL SPRITE(£N,120,N+3,89,N*85,0,-10):: NEXT N :: RETURN
1080 REM SHEET 2G
1090 CALL CHAR(120,RPT$("0",11)&"F1F1F1F1F1E0C0000000182040E0A2E4F8C2FCC0A0A090
D")
1100 FOR N=2 TO 4 :: CALL SPRITE(£N,120,2,90,(N-1)*85,0,15):: NEXT N :: RETURN
1110 REM SHEET 2I
1120 CALL CHAR(120,"545223252711CA251ACD3A0D3EC70B712A4AC4A4E488D364B853BC50BC73
EB87")
1130 FOR N=2 TO 3 :: CALL SPRITE(£N,120,2,89,(N-1)*127,0,-23):: NEXT N :: RETURN
1140 REM SHEET 2K
1150 CALL CHAR(120,"071F7F1F0F"&RPT$("0",22)&"E0FCFFFCF8"&RPT$("0",22))
1160 FOR N=2 TO 3 :: CALL SPRITE(£N,120,N,83,(N-1)*85,0,-1):: NEXT N :: FOR N=5
TO 7 :: CALL SPRITE(£N,120,N,99,(N-4)*85,0,-10):: NEXT N
1170 RETURN
1180 REM SHEET 29
1190 CALL CLEAR :: CALL SCREEN(5):: CALL HCHAR(8,1,40,512):: CALL HCHAR(12,1,41,
64):: CALL HCHAR(24,1,33,32)
1200 FOR N=3 TO 7 :: CALL HCHAR(N,23,40,10):: NEXT N :: CALL HCHAR(3,22,35)
1210 FOR N=25 TO 32 STEP 4 :: CALL VCHAR(3,N,32,2):: CALL VCHAR(7,N+2,33,3):: CA
LL HCHAR(3,N+1,35):: CALL HCHAR(4,N+1,33):: CALL VCHAR(7,N+1,33,3):: NEXT N
1220 FOR N=1 TO 23 STEP 4 :: CALL HCHAR(7,N,116):: CALL HCHAR(8,N,117):: CALL HC
HAR(8,N+1,35):: CALL HCHAR(10,N+3,33):: NEXT N :: CALL VCHAR(4,22,33,5)
1230 CALL HCHAR(1,24,128):: CALL HCHAR(2,24,129):: CALL HCHAR(1,25,130)
1240 CALL CHAR(120,"00103931311111101F131D1111111103808C0C0E0C0C0E0F0F8FCFEFFFF
40C0")
1250 CALL CHAR(136,"0003030317090703030 70F1F0202060B00C0C0C0E890E0C0C0E0F0F84040
C040")
1260 CALL SPRITE(£2,120,14,89,200,0,-30,£3,124,5,73,255,0,-2,£4,124,13,73,127,0,
-2,£28,136,11,56,234)
1270 Z=5
1280 RETURN
1290 REM HIT !!!!!!
1300 CALL COINC(£1,£28,16,B):: IF B AND CO>3 THEN 1430
1310 CALL MOTION(£1,0,0):: CALL SOUND(500,-7,0):: CALL POSITION(£1,X,Y):: CALL P
ATTERN(£1,132):: CALL MOTION(£1,7,0)
1320 RESTORE 1350
1330 FOR Q=1 TO 11 :: READ F,T :: CALL SOUND(T,F,0):: NEXT Q
1340 CALL POSITION(£1,A,B):: IF A<166 THEN 1340 ELSE CALL MOTION(£1,0,0)
1350 DATA 147,260,147,260,147,185,147,260,175,265,165,215,165,240,147,240,147,21
5,139,240,147,300
1360 FOR O=1 TO 300 :: NEXT O :: CALL PATTERN(£1,R):: CALL LOCATE(£1,89,50):: ME
N=MEN-1 :: IF MEN<0 THEN 1370 ELSE GOTO 200
1370 CALL CLEAR :: CALL SCREEN(2):: CALL DELSPRITE(ALL):: DISPLAY AT(12,3):"ALL
YOUR MEN ARE DEAD": :" YOU SCORED";SC;"POINTS": :"DO YOU WANT TO PLAY AGAIN ?"
1380 CALL KEY(0,K,S):: IF S=0 THEN 1380 ELSE IF K=89 THEN 100 ELSE IF K=78 THEN
STOP ELSE 1380
1390 REM O.K.....
1400 IF L=30 THEN 190
1410 X$="SHEET!"&STR$(L)&"!COMPLETED!!!" :: DISPLAY AT(24,1)SIZE(LEN(X$)):X$ ::
L=L+1 :: CO=1 :: CALL DELSPRITE(ALL)
1420 MEN=MEN+1 :: SC=SC+L*100 :: GOTO 150
1430 REM DUNIT
1440 FOR N=2 TO 4 :: CALL DELSPRITE(£N):: NEXT N
1450 CALL COLOR(£28,5):: CALL LOCATE(£1,89,244,£28,89,256):: CALL MOTION(£1,0,-5
,£28,0,-5)
1460 RESTORE 1480
1470 CALL COINC(£1,89,40,8,D):: IF D THEN 1500 ELSE READ N,T :: IF N=0 THEN REST
ORE 1480 :: GOTO 1470 ELSE CALL SOUND(T,N,0):: GOTO 1470
1480 DATA 392,300,392,300,440,300,370,450,392,150,440,300,494,300,494,300,523,30
0
1490 DATA 494,450,440,150,392,300,440,300,392,300,370,300,392,900,0,0
1500 CALL MOTION(£1,0,0,£28,0,0):: SC=SC+10000 :: Z=Z+1
1510 DISPLAY AT(15,1):"!WELL!DONE!YOU!HAVE!RESCUED!":"!THE!DAMSEL!!!BUT!CAN!YOU!
DO":"!!!!!!!!!IT!AGAIN!!!!!!!!!!"
1520 FOR N=1 TO 500 :: NEXT N
1530 MEN=MEN+3 :: CALL CLEAR :: CALL DELSPRITE(ALL):: L=1 :: GOTO 150
1540 REM DEFINE CHARACTERS
1550 CALL CHAR(33,RPT$("F",16)&"183C666642426666003 0F3FFFFFFFFF")
1560 CALL CHAR(40,"FCFCFC00FCFCFC00FF7030180C0603FF"): BRICKS
1570 CALL CHAR(92,"000001010F0909090101013E200000C0C4C4FCC0C0C0C0C0201008081020
30")
1580 CALL CHAR(96,"0101031F1313130303033F2000000080888868F8808080808000008040 2
030")
1590 CALL CHAR(100,"0000010107090905010101010618100 0C0C0C2F4C8C0C0C0C0201008081020
3")
1600 CALL CHAR(104,"0000010107050301010101010202020 3C0C0C0E0E0F8C0C0C0C0202010102 0
406")
1610 CALL CHAR(108,"0000010303030301010101000007040 0C0C0C0E0E0F0C0C0404 0C0C0A0
80C")
1620 CALL CHAR(112,"0000010107090905010100000704000 0C0C0C0E0E0F8C0C0C040C040A010
203")
1630 CALL CHAR(116,"0044EE5F4E4E447E5E6E4E4A4A4A5E"&RPT$("0",32))
1640 CALL CHAR(124,"00010F010F201F2303030303011F1F20E060E0E0C0E0F0E0F2E7F2E2BE
8080")
1650 CALL CHAR(128,"FFBFBFBFBFBFFF8080808080808080FF6F2F4767F7F1FFFF0F7F416707
F1FF")
1660 CALL CHAR(132,"030Z0E1E18180E0E0E0E0607070707070E0E07078181870707060 60E0E0E0
E0E0")
1670 CALL CHAR(140,"0804074SE7F1FFFFFF7F1F0F0301010010 20E0A2E7BFFFFFFFFEF8F0C060
80")
1680 RETURN
1690 REM INSTRUCTIONS & TITLE PAGE
1700 CALL SCREEN(5):: GOSUB 290 :: GOSUB 350
1710 DISPLAY AT(1,1):"!!!!!!!SIR!PRANCEALOT!!!!!!!" :: DISPLAY AT(24,1):"!PRESS!
ANY!KEY!TO!CONTINUE!!"
1720 CALL KEY(0,K,S):: CALL COLOR(£INT(RND*3)+2,INT(RND*15+2)):: IF S=0 THEN 172
0 ELSE 1730
1730 CALL SCREEN(2):: CALL DELSPRITE(ALL):: CALL CLEAR
1740 PRINT TAB(7);"SIR PRANCEALOT";RPT$("=",28): :"YOU MUST USE THE JOYSTICK TO"
: :" JUMP OVER THE OBSTACLES": :" AND TOUCH THE STONE AT THE": :
1750 PRINT TAB(7):"END OF THE RUN": :" >3 TIMES EACH SHEET": :" YOU MUST ULT
IMATLEY RESCUE": :" THE DAMSEL BY TOUCHING HER": :" PRESS FIRE BUTTON TO JUMP"
1760 PRINT :: PRINT " AND MOVE JOYSTICK TO BEGIN"
1770 PRINT :: PRINT :: DISPLAY AT(24,2):"PRESS ANY KEY TO CONTINUE"
1780 CALL KEY(0,K,S):: CALL KEY(1,J,S):: IF K>0 THEN L=1 :: CALL CLEAR :: RETURN
ELSE 1780
```



```
1 PRINT"■";
2 PRINT"■   TRIPLE CHANCE     "
3 PRINT"■BY.ANDREW LAYCOCK"
4 PRINT"■ THIS GAME IS PLAYED"
5 PRINT"WITH THREE DICES."
6 PRINT"TO MAKE MONEY YOU MUST GUESS THE NUMBER THAT"
8 PRINT"WILL BE THROWN BY THE"
9 PRINT"DICE. IF YOUR GUESS"
10 PRINT"IS INCORRECT THEN YOU"
11 PRINT"WILL LOOSE THE AMOUNT"
12 PRINT"OF MONEY GAMBLED FROM"
13 PRINT"YOUR STARTING ACCOUNT."
14 PRINT"IF YOU HAVE NO MONEY "
15 PRINT"LEFT THEN TYPE IN THE"
16 PRINT"NUMBER 0 WHEN IT ASKS FOR YOUR NUMBER.THEN  TYPE RUN OR NEW."
18 PRINT"■■■■■GOOD LUCK!!■   "
20 INPUT"HIT RETURN TO GO ON";Z$
21 IFZ$=""THEN:GOTO30
30 A$="■   ,---,  ,---,  ,---,"
31 B$="    |   |  |   |  |   |"
32 C$="    |   |  |   |  |   |"
33 D$="    |___|  |___|  |___|"
34 E$="
35 INPUT"■■■■■■■■■■■STARTING ACCOUNT";S
36 IFS=0THEN36
37 PRINT"■YOU NOW HAVE\";S:GOTO50
50 INPUT"■NEXT BET\";T
51 IFT<=STHEN60
52 IFT>=STHEN53
53 PRINT"YOU CAN NOT AFFORD IT":GOTO37
60 INPUT"■NUMBER";F
61 IFF =0THENPRINT"OK":GOTO1000
70 IFF>=18THENPRINT"■IT WONT BE THAT HIGH":GOTO60
100 PRINT"■BET=";T
101 PRINT"■NUMBER ";F
110 PRINT"■■■■";A$
130 PRINTB$
150 PRINTC$
170 PRINTD$
190 PRINTE$
200 R=INT(10+40*RND(0))
210 FORY=1TOR
220 A=INT(1+6*RND(0))
230 B=INT(1+6*RND(0))
240 C=INT(1+6*RND(0))
250 POKE36878,0
251 POKE36876,0
260 PRINT"■■■■■■■■■■■■";A
261 PRINT"■■■■■■■■■■■■■■■■■■■■";B
262 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■";C
270 NEXTY
280 M=A+B+C
290 IFM=FTHEN:GOTO300
291 IFM<>FTHEN:GOTO299
299 PRINT"■■■YOU LOOSE IT WAS";M:GOTO310
300 S=S+T:GOTO420
310 S=S-T:GOTO410
410 PRINT"■■■■■■■■■YOU LOST\";T:GOTO430
420 PRINT"■■■■■■■■■■■■■■YOU WON\";T:GOTO440
430 PRINT"YOU HAVE\";S;"LEFT":GOTO550
440 PRINT"YOU HAVE\";S;"LEFT":GOTO500
500 POKE36878,15
501 FORL=1TO100
502 POKE36876,INT(RND(1)*128)+128
503 FORM=1TO10
504 NEXTM
505 NEXTL
506 POKE36876,0
507 POKE36878,0
510 GOTO50
550 POKE36877,220
551 FORL=15TO0STEP-1
552 POKE36878,L
553 FORM=1TO300
554 NEXTM
555 NEXTL
556 POKE36877,0
557 POKE36878,0
560 GOTO50
1000 PRINT"■";
```

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RUNdown

Line	Action
1-21	Clear screen and display instructions.
30-37	Graphics and starting inputs.
50-110	Main INPUT loop.
130-270	Spin and select dice number.
280-440	End of turn.
500-1000	Graphics effects.

Variables Used

S	Starting amount of money.
T	The amount of money in the bet.
F	The dice number that has been bet on.
A,B,C	The dice values.
R	Total number of faces to be shown.
M	Total value of all three dice.
A$,B$,C$	
D$,E$	Graphics for the dice.

Note: In the listing all slashes "/" should be replaced with pound signs "£".

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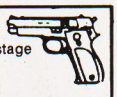

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